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This catalog supersedes all previous bulletins, catalogs and brochures published by the University of New Haven and describes academic programs to be offered beginning in fall 1988. Undergraduate students admitted to the university for the fall of 1988 and thereafter are bound by the regulations published in this catalog. Those admitted prior to fall 1988 are bound by those new regulations which have been duly instituted and announced prior to the semester during which they are effective.

The University of New Haven is committed to equal access to educational and employment opportunities at the university for all applicants regardless of race, creed, color, religion, sex, national origin, age or disability in compliance with federal and state statutes. Benefits, privileges and opportunities offered by the University of New Haven are available to all students and employees on a non-discriminatory basis in accordance with federal and state statutes. In recruitment of students and employees, the University of New Haven subscribes to a policy of affirmative action and equal opportunity.

Inquiries regarding affirmative action, equal opportunity and Title IX may be directed to the director of equal opportunity.

Any male generic terms and titles appearing throughout this book refer to both males and females and are used for grammatical simplicity and semantic convenience.

The university reserves the right, at any time, to make whatever changes may be deemed necessary in admission requirements, fees, charges, tuition, policies, regulations and academic programs prior to the start of any class, term, semester, trimester or session.

Every effort has been made to ensure that the information contained in this publication is accurate and current as of the date of publication; however, the university cannot be held responsible for typographical errors or omissions that may have occurred.

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ACADEMIC CALENDAR

Fall Semester 1988

August	Tuition and residence charges due	**Mon., 1**
September	Residence Halls open	**Tues., 6**
	Orientation	**Tues.-Wed., 6-7**
	Evening Classes begin	**Wed., 7**
	Day Classes begin	**Thurs., 8**
	Last day to add a course without a late fee	**Mon., 12**
	Last day for schedule revision	**Wed., 14**
October	Last day to petition for January graduation	**Fri., 14**
	Last day to drop courses	**Fri., 21**
November	No evening classes	**Wed., 23**
	Thanksgiving recess	**Thurs.-Sat., 24-26**
December	Day Classes end	**Fri., 16**
	Evening Classes end	**Sat., 17**
	Reading Day	**Sat., 17**
	Final Examinations	**Mon.-Fri., 19-23**
	Last Day of Semester	**Fri., 23**
	Residence Halls close	**Fri., 23**
January 1989	Commencement	**Sun., 22**

Intersession 1989

January	Classes begin	**Tues., 3**
	Holiday	**Mon., 16**
	Classes end	**Fri., 20**

Spring Semester 1989

January	Tuition and Residence charges due	**Tues., 3**
	Residence Halls open for new students	**Thurs., 21**
	Residence Halls open for returning students	**Sun., 22**
	Orientation	**Fri., 20**
	Classes begin	**Mon., 23**
	Last day to add a course without a late fee	**Wed., 25**
	Last day for schedule revision	**Mon., 30**
February	Holiday	**Mon., 20**

March	Last day to petition for June graduation	Wed., 1
	Last day to drop courses	Fri., 3
	Spring Recess	Mon.-Sat., 20-25
	Classes resume	Mon., 27
May	Classes end	Mon., 8
	Reading Day	Tues., 9
	Final Examinations	Wed.-Tues., 10-16
	Last Day of Semester	Tues., 16
	Residence Halls close	Wed., 17
June	Commencement	Sun., 4
	Summer Sessions 1989	
May	Classes begin	Wed., 17
August	Classes end	Sat., 19
	Fall Semester 1989	
August	Tuition and residence charges due	Tues., 1
September	Residence Halls open	Tues., 5
	Orientation	Tues./Wed., 5-6
	Evening Classes begin	Wed., 6
	Day Classes begin	Thurs., 7
	Last day to add a course w/o a late fee	Mon., 11
	Last day for schedule revision	Wed., 13
October	Last day to petition for January graduation	Mon., 16
	Last day to drop courses	Fri., 20
November	No evening classes	Wed., 22
	Thanksgiving recess	Thurs.-Sat., 23-25
December	Day Classes end	Fri., 15
	Evening Classes end	Sat., 16
	Reading Day	Sat., 16
	Final Examinations	Mon.-Fri., 18-22
	Last Day of Semester	Fri., 22
	Residence Halls close	Fri., 22
January 1990	Commencement	Sun., 21
	Intersession 1990	
January	Classes begin	Tues., 2
	Holiday	Mon., 15
	Classes end	Tues., 23

Spring Semester 1990

January	Tuition and residence charges due	**Tues., 2**
	Residence Halls open for new students	**Tues., 23**
	Residence Halls open for returning students	**Wed., 24**
	Orientation	**Wed., 24**
	Classes begin	**Thurs., 25**
	Last day to add a course w/o a late fee	**Mon., 29**
	Last day for schedule revision	**Wed., 31**
February	Holiday	**Mon., 19**
March	Last day to petition for June graduation	**Thurs., 1**
	Last day to drop courses	**Fri., 9**
	Spring Recess	**Mon.-Sat., 19-24**
	Classes Resume	**Mon., 26**
April	Holiday	**Thurs.-Fri., 12-13**
May	Classes end	**Mon., 14**
	Reading Day	**Tues., 15**
	Final Examinations	**Wed.-Tues., 16-22**
	Last Day of Semester	**Tues., 22**
	Residence Halls close	**Wed., 23**
June	Commencement	**Sun., 10**

Undergraduate Trimester Calendar
(Southeastern Connecticut)

Fall Trimester 1988

September	Classes begin	**Mon., 12**
November	Thanksgiving recess	**Mon.-Fri., 21-25**
December	Classes end	**Fri., 16**

Winter Trimester 1989

January	Classes begin	**Tues., 3**
	Holiday	**Mon., 16**
February	Holiday	**Mon., 20**
March	Holiday	**Fri., 24**
	Classes end	**Fri., 31**

	Spring Trimester 1989	
April	Classes begin	**Mon., 3**
May	Holiday	**Mon., 29**
June	Classes end	**Fri., 30**
	Summer Session 1989	
July	Session begins	**Mon., 10**
August	Session ends	**Fri., 18**
	Fall Trimester 1989	
September	Classes begin	**Mon., 11**
November	Thanksgiving recess	**Mon.-Fri., 20-24**
December	Classes end	**Fri., 15**
	Winter Trimester 1990	
January	Classes begin Holiday	**Tues., 2** **Mon., 15**
February	Holiday	**Mon., 19**
March	Classes end	**Fri., 30**
	Spring Trimester 1990	
April	Classes begin Holiday	**Mon., 2** **Fri., 13**
May	Holiday	**Mon., 28**
June	Classes end	**Fri., 29**
	Summer Session 1990	
July	Session begins	**Mon., 9**
August	Session ends	**Fri., 17**

THE UNIVERSITY

The University of New Haven is a private, urban, coeducational university with a contemporary and innovative view of higher education.

The undergraduate programs here are designed to meet the needs of today's students by offering them the professional training they will need for careers in a highly competitive job market.

The university balances its curriculum by offering a liberal, humanistic education with professional programs in business, engineering, computer science and other advanced technical programs.

The university also is flexible enough to meet the needs of students who work while they attend school at UNH. The Evening Division offers a range of programs at night. A cooperative education program makes it possible for students to alternate semesters of class attendance with related work experience.

By responding to the educational needs of our students, the University of New Haven has become a major regional university serving both our students and the business community.

Accreditation

The University of New Haven is a coeducational, non-sectarian, independent institution of higher learning, chartered by the General Assembly of the State of Connecticut.

The University of New Haven is fully accredited by the New England Association of Schools and Colleges which accredits schools and colleges in the six New England states. Membership in the association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators.

The university holds membership in the American Council on Education, the Association of American Colleges, the National Association of Independent Colleges and Universities, the Accreditation Board for Engineering and Technology, the Criminal Justice Accreditation Council, the American Dietetics Association, the College Entrance Examination Board and is a member of other regional and national professional organizations.

Individual programs, departments and schools hold various forms of national professional accreditations, listed under relevant sections of the catalog.

History

The University of New Haven was founded in 1920 as the New Haven YMCA Junior College, a branch of Northeastern University. The college became New Haven College in 1926 by an act of the Connecticut General Assembly. For nearly 40 years, the college held classes in space rented from Yale University.

In September 1958, the college completed construction of a classroom building on Cold Spring Street, New Haven, for its daytime engineering building. That same year, the college received its first authorization from the Connecticut legislature to offer the bachelor of science degree in the fields of business accounting, management and industrial engineering.

But though its student body on the new Cold Spring Street campus numbered fewer than 200 persons, the college's facilities were fast becoming overcrowded. To meet the needs of the college and the local community, the Board of Governors purchased, in 1960, three buildings and 25 acres of land in West Haven, formerly belonging to the New

Haven County Orphanage.

The combination of increased classroom space and the four-year degree program sparked a period of tremendous growth in enrollment and facilities. In 1961, the year after the college moved to West Haven, the graduating class numbered 75. More than twenty-five years later, the figure has climbed to more than 1,500.

New Haven College received full accreditation of its baccalaureate programs from the New England Association of Schools and Colleges in 1966. In 1969, the college took a major step forward with the addition of the Graduate School. Initially offering programs in business administration and industrial engineering, the Graduate School expanded rapidly. Today, 22 programs and additional courses have pushed graduate enrollment to more than 2,600.

On the fiftieth anniversary of the founding of the college, in 1970, New Haven College became the University of New Haven, reflecting the increased scope and the diversity of academic programs offered.

Today, the university offers more than 100 graduate and undergraduate degree programs in six schools: the Graduate School and the School of Art and Sciences, the School of Business, the School of Engineering, the School of Hotel, Restaurant and Tourism Administration and the School of Professional Studies and Continuing Education.

Undergraduate courses and programs are offered in West Haven on the main campus as well as in the Groton/New London area and other off-campus and in-plant sites. Graduate courses and programs are offered in West Haven and in Clinton, Waterbury, Middletown, Trumbull, Stamford and Groton/New London.

Philosophy

The basic assumptions and goals that have governed and continue to govern the academic programs and life of the university are four:

- the belief that there is value and virtue in a general education to help students acquire an understanding of society and the place of the individual within it,
- a conviction that the hallmark of an educated person is a critical mind in the sense of a capacity to test and challenge previous assumptions and new ideas,
- a strong commitment to the principle that in a complex and technological society a university cannot be insensitive to the need of its students for professional training which will enable them to obtain rewarding and productive employment, and
- that a higher education must provide students with a breadth of knowledge and a sensitivity to weigh ethical and moral issues and form values and life goals.

Other assumptions and considerations governing the academic programs and activities of the university are:

- the need for students to participate in work and service activities which provide contacts with other aspects of society and in using skills and exercising judgment and responsibility in a variety of settings outside the university community.
- the importance of allowing full play and scope to the creative abilities and intellectual curiosity of students through opportunities to pursue independent study and investigation.
- the importance of recognizing the educational interest of students geared toward specific professions and careers as students seek to

adjust to changing labor market conditions, and the preparation of students for graduate and professional training beyond the baccalaureate.

Services and Facilities of the University

The Institute of Computer Studies

The University of New Haven Institute of Computer Studies (ICS) is an academic organization merging people, ideas and resources to promote, enhance and support computer-related programs and activities at UNH. The institute complements and assists academic departments and other computing units at the university in promoting and developing innovative responses to emerging computing requirements.

The University of New Haven has fostered the multifaceted development of computer science and computer-related courses in its schools. An increasing number of faculty and students are utilizing some aspect of computing. The institute was created from the recognition of this growing, multidisciplinary diversity of computer needs and applications in the university community to provide information and coordination in the development of these activities. The specific responsibilities which encompass the activities of the institute are to:

- provide coordination for many computer-related activities;
- provide and administer certain computer-related facilities and services, including a microcomputer lab;
- assist in offering non-credit courses in computer-related areas;
- assist departments when appropriate in their development of new programs and courses;
- assist in directing students to computer-related programs appropriate to their needs;
- disseminate information concerning academic computing activities;

Facilities

The university's 70-acre campus contains 20 buildings that offer students modern laboratory and library facilities, the latest in computer technology and equipment, an athletic complex and residential facilities.

Located in West Haven, about 10 minutes from downtown New Haven, the main campus includes administration and classroom facilities in Maxcy Hall, the Graduate School, Buckman Hall Engineering and Sciences Building, Echlin Hall Computer Center; the bookstore, the Psychology Building, Robert B. Dodds Hall and residence halls.

The south campus includes Harugari Hall and the Student Services and Admissions Building, while the north campus is the site of the university's athletic fields and gymnasium.

Some of these facilities are described in the following paragraphs.

Marvin K. Peterson Library

The Marvin K. Peterson Library, named in honor of a former president of the university, was opened in 1974. Adjoining Maxcy Hall, it includes special collection rooms, a music room, archives and spacious reading and reference areas. Study is made convenient by modern research facilities and equipment including microreading stations and microform reader-printers, as well as computer terminals.

The library contains space for more than 300,000 volumes, including U.S. government documents. The library subscribes to over 1,000 periodicals and maintains extensive back issues files.

The resources of both the New Haven and West Haven public libraries

are available to students. Under a reciprocal arrangement, University of New Haven students may borrow materials from the libraries of Albertus Magnus College and Quinnipiac College by presenting a valid identity card.

For students at the Southeastern campus, holdings and facilities are available at the Groton public library. The public library itself has extensive holdings in reference materials, books, periodicals and non-print materials that can be used by students. In addition, a UNH collection of books, journals and reference materials is available. Online searches, interlibrary loans and telefacsimile communications with the West Haven campus and document delivery services make available a wide range of materials. A library handbook describes services and holdings.

For students in the Waterbury area, the Traurig Library at Post College is available for study and research. The library has reference materials, books, and journals as well as comfortable facilities for study. In addition, a UNH collection of books is available. Online searches, telefacsimile communications with the West Haven campus, and interlibrary loans enable the student to have available a wide range of materials. A library handbook describes services and holdings.

Computer Center

The university Computer Center provides a state-of-the-art facility to both the administrative and academic functions at the university. It maintains three independent processing units, each accessible from any given terminal via a network processor.

A Data General Eclipse MV8000 is dedicated to academic support. It has 10 megabytes of main memory and a virtual address range of 4 gigabytes with peripheral storage of 1400 megabytes. The operating system is AOS/VS with multiprogramming/multitasking capability and can handle up to 255 concurrent processes. Currently, there are 72 VDT ports, a 600 1pm printer, several dot-matrix printers, and a laser printer. Tubes for student use are spread throughout 4 clusters on campus with the largest concentration located in Echlin Hall; there is also a cluster in New London to support the Southeastern campus academic computing. In addition, the system supports four Tektronix raster graphics terminals with plotter and printer; and a PC/MV8000 connect for up/down loading files.

Software includes FORTRAN 77, COBOL, BASIC, PL/1, Pascal, RPG, APL, UNIX, C, DBMS, Lisp, Word Processing, Spreadsheet, and TEX (desk-top publishing package); also SPSS and IMSL; also GKS and IGL graphics packages; also STRESS (Civil Engr), SPICE (Elec Engr); business and engineering simulation packages; and several financial data files.

Another Data General computer, the S140, is used as the driver for a MEGATEK vector refresh graphics unit. The MEGATEK has a 4096 x 4096 screen and supports keyboard entry, joy-stick, mouse and tablet input and has 3-D rotation/translation capabilities 'hard-wired.' The S140 is a 16-bit processor, has a 1/2 megabyte main memory, 24 megabyte hard-disc and a floppy disc drive. The operating system is AOS and communicates with the MV8000 through Data General's network support system XODIAC, allowing S140 users access to the 32-bit compilers and packages when needed.

Microcomputer Laboratories

The university maintains microcomputer laboratories in Echlin Hall for the entire university community. The labs are equipped with IBM-PC or PC-compatible computers, each with 512K or more of RAM, dual disk drives, color-graphic screens and dot-matrix printers capable of text or graphic printing. A wide variety of software is available for use,

including word processing programs, data base managers, spreadsheets, statistical software and specialized packages for a variety of applications such as graphics production, nutritional analysis, digital circuit design, hotel administration, etc. Languages currently used for programming the microcomputers include: APL, Assembler, BASIC, C, Forth, Fortran, ICON, LISP, LOGO, Modula-2 and Pascal, all operating under MS-DOS. The Institute of Computer Studies provides a variety of support services for those who wish to learn more about using microcomputers.

Athletic Complex

The university's north campus houses the gymnasium, with seating for 1,400 at sporting events, a fully equipped weight room, racquetball court and an exercise room.

On the adjacent grounds are six tennis courts, baseball and softball diamonds, and Robert B. Dodds Stadium, a combination football, lacrosse and soccer field, with seating for 3,500.

The National Art Museum of Sport

The National Art Museum of Sport was founded in 1959 and in 1964 received its charter from the New York State Board of Regents. Since 1979, its permanent collection has been located at the University of New Haven. Some 75 paintings, sculptures, drawings and prints are now displayed in the gallery, located in Robert B. Dodds Hall, the balance of 70 are in the Marvin K. Peterson Library. This collection, plus the museum's traveling collection, several works on loan elsewhere, and hundreds of photographs and slides comprise what is generally credited to be America's largest and most diversified assemblage of sport art.

Schools of the University

School of Arts and Sciences

The School of Arts and Sciences offers associate degree programs in seven academic fields and bachelor's degrees in 23 fields from art to world music. The school's certificate programs offer specialized instruction to students interested in a concentrated exposure to one subject area, in fields such as journalism, paralegal studies and graphic design.

Through the Graduate School, the School of Arts and Sciences also offers master's degree programs as well as a senior professional certificate. Detailed information on the graduate programs is available in the Graduate School catalog.

School of Business

The School of Business offers programs in the departments of accounting/finance; communication; economics; management; marketing; and public management which includes criminal justice, forensic science and public administration. Certificate programs cover aspects of communication and criminal justice.

Through the Graduate School, the School of Business offers a doctoral degree in management systems and master's degree programs as well as a number of business-related senior professional certificates.

School of Engineering

The School of Engineering offers degree programs in eight fields: chemistry, chemical engineering, civil engineering, computer science, electrical engineering, industrial engineering, industrial technology, materials technology, mechanical technology and mechanical engineering.

Master of science degree programs and a senior professional certificate are offered through the Graduate School in several engineering fields. Students may consult the Graduate School catalog for more details.

School of Hotel, Restaurant and Tourism Administration

The School of Hotel, Restaurant and Tourism Administration offers degree programs through the departments of hotel and restaurant management, tourism and travel administration, and dietetics. The school's many certificate programs offer concentrated study in fields such as culinary arts, casino management and club management.

Master of business administration concentrations in hotel and restaurant management and tourism and travel administration are offered through the Graduate School. Students may consult the Graduate School catalog for more details.

School of Professional Studies and Continuing Education

The School of Professional Studies and Continuing Education offers programs leading to the associate in science degree, the bachelor of science degree, and certain master of science degrees. In addition, the school offers certificates and graduate-level professional certificates as well as part-time credit and non-credit courses both on and off campus. The school has five distinct units:

Department of Professional Studies

Professional studies offers associate in science degree programs in aviation science, occupational safety and health, fire and occupational safety, and professional studies. Bachelor's degree programs are offered in fire science administration, arson investigation with a minor in criminal justice, fire science technology with a minor available in civil engineering, air transportation management and professional studies. The bachelor's degree in occupational safety and health permits the selection of a minor tailored to the interests of the individual.

Cooperative Education

Cooperative education (Co-op) is a unique academic program that enables a student to combine practical work experience with his or her college education. While earning a bachelor's degree, the student alternates periods of employment in the business or industrial community with periods of on-campus study in the job-related field.

Division of Evening Studies

More than 132 associates, bachelors and certificate programs are offered by the Division of Evening Studies during the fall and spring semesters. Summer day and evening courses are offered during seven-, nine-, and eleven-week sessions. During the winter intersession in January, both innovative and conventional intensive courses are offered mornings and afternoons. All the offerings in this division carry the same faculty support, standards, and degree requirements as the day division.

Those interested may call the Evening Studies Office to receive a schedule before each semester and further information on evening programs.

UNH in Southeastern Connecticut

UNH in Southeastern Connecticut offers associates, bachelors and certificate programs for students in the Groton-New London Area. Engineering, business and paralegal courses are available on an evening basis to the general public as well as to employees of certain corporations

who have onsite programs. For further information please contact UNH in Southeastern Connecticut office.

Division of Special Studies

This division offers a variety of non-credit certificate courses in both specialized and general areas of study as well as intensive seminars and workshops. Non-credit courses offer the opportunity to upgrade professional skills, explore new directions and increase enjoyment of leisure time.

In conjunction with the Institute of Computer Studies, the division offers a full range of computer courses from individual and family applications of home computers to advanced languages and applications for individuals with more experience, and business applications with specific and individualized focus.

The Division of Corporate and Professional Development also provides the necessary courses for state certification in such fields as real estate and insurance as well as a large variety of personal enrichment and professional development workshops. Most courses meet one evening per week and generally include six to 12 sessions.

The division also designs and delivers seminars and training programs to a wide range of Connecticut companies and organizations. Custom-tailored programs delivered in recent years range from basic communication skills to modern management concepts and the newest engineering technology. The division is prepared to meet the specific training needs of any area company or organization. The university awards CEUs to individuals who successfully complete professional development seminars or courses.

Graduate School

The Graduate School, founded in 1969, offers a doctoral program, 22 master's degree programs and 29 advanced certificate programs. All academic programs are offered at the main campus in West Haven. Courses leading to the master's degree in business administration and other selected programs are offered at off-campus locations in Clinton, Groton, Middletown, Trumbull, Wallingford and Waterbury.

Programs offered by the Graduate School are:

Accounting
Business Administration
Business Administration/Industrial Engineering (dual degree)
Business Administration/Public Administration (dual degree)
Community Psychology
Computer and Information Science
Criminal Justice
Electrical Engineering
Environmental Engineering
Environmental Science
Executive M.B.A.
Fire Science
Forensic Science
Humanities
Industrial Engineering
Industrial/Organizational Psychology
Industrial Relations
Management Systems (Sc.D.)
Mechanical Engineering
Occupational Safety and Health Management

Operations Research
Public Administration
Taxation
Senior Professional Certificate Programs
Professional Certificate Programs

The Graduate School operates on a trimester calendar, with terms beginning in September, January and April. Classes meet once each week during the regular trimesters. In addition, an abbreviated summer session is offered during July and August. Classes meet twice each week in this special summer session.

To accommodate working professionals, most courses meet in the evenings, beginning at 5:30 or 6 p.m. A few classes are scheduled earlier in the day or on Saturdays.

Additional information regarding graduate programs may be obtained from the Graduate School Admissions Office or by calling (203) 932-7133.

Degrees Offered by the University

Undergraduate Degrees

The University of New Haven offers undergraduate programs leading to the bachelor of arts degree, the bachelor of science degree, the associate in science degree and a number of certificate programs.

Bachelor's Degrees

The bachelor's degree programs require a minimum of 120 credit hours of study and take four years for full-time students. Many other University of New Haven students take advantage of the full range of courses offered in the evening and complete their undergraduate degree on a part-time schedule that complements their own careers.

Associate Degrees

Associate degree programs are designed to encourage students to begin their college education even though they do not yet want to commit themselves to a full, four-year course of study. A minimum of 60 credit hours are required for the associate degree, and the credits earned usually apply toward the student's bachelor's degree.

Certificate Programs

Students can take their first step toward an undergraduate degree by registering for one of the certificate programs offered by the university.

Each certificate program is carefully designed as a concentrated introduction to a particular subject area and consists of courses totaling 15 to 30 credit hours.

Later, students may choose to apply the credits they have earned toward their undergraduate degree at the university.

For a list of certificate programs, see page 206. Please contact the Evening Division for further details.

Graduate Degrees

Through the UNH Graduate School, programs are offered leading to the master of arts degree, the master of science degree, the master of public administration, the master of business administration, the executive master of business administration, the doctor of science in management systems and a number of professional and senior professional certificates. For more information, contact the Graduate School or consult the Graduate Catalog.

STUDENT LIFE

James E. Martin, Ph.D., dean for students

Being a student at the University of New Haven means being a part of the New Haven community—a city noted for its music, theater, art galleries and more.

Musical entertainment ranges from year-round performances of the New Haven Symphony to rock concerts at the New Haven Coliseum to local bands at many downtown clubs. Professional theater thrives in New Haven at Long Wharf Theater, the Yale Repertory Company and the Shubert. Some of the region's outstanding art collections can be seen on the Yale University campus.

On weekends, the Connecticut shore, Cape Cod, the ski slopes of Vermont and New Hampshire, and New York City are just a car or train ride away.

Activities on Campus

On campus, students can attend a variety of events including movies, lectures by a variety of well-known public figures, rock music concerts, student theatrical presentations and more.

Clubs and Organizations

More than 40 university student clubs and societies are open to interested students. Included are student chapters of professional societies, religious organizations, social groups and special interest clubs.

Councils

Separate day, evening and graduate student councils have the responsibility for initiating, organizing and presenting extracurricular activities and acting as liaison between students and the university staff.

The Day Student Government is a forum where undergraduate students can provide input to the administration to improve all aspects of undergraduate education at the university. The council schedules a number of extracurricular activities; all students are encouraged to participate.

Cultural Activities

There are student organizations formed around interests in literature, art, film and drama. These groups sponsor visiting artists and lecturers, produce plays and concerts, publish materials and generally provide a well-rounded cultural program for University of New Haven students.

Fraternities and Sororities

National and local service, social and honorary fraternities and sororities are active on campus. They sponsor programs such as the semi-annual bloodmobile and other services as well as social functions.

Publications

Student publications include *The Charger Bulletin*, the university student newspaper; *The Chariot*, the annual yearbook; and the *The*

Noiseless Spider, a literary publication. Students may volunteer their services on any of the student publications.

Social Activities

The social calendar is filled with varied events to appeal to all students: mixers, concerts, films, comedians, Homecoming and May Day.

Alumni Office

Robert H. Morgan, director

Membership in the UNH Alumni Association is acquired automatically upon graduation. There are currently approximately 21,000 members.

Alumni are entitled to certain privileges including use of the library and athletic facilities, services of the Career Development Office and special alumni course auditing rates. ID cards issued to new graduates soon after graduation entitle alumni to these and other offerings.

Insight, containing news of campus and alumni happenings, is mailed periodically throughout a year. Homecoming, an annual scholarship ball, estate planning seminars and other educational and social events offer opportunities for continual contact with UNH and fellow alumni. Charter travel, life and major medical insurance programs are also available.

Alumni board members govern the association with the assistance of a council of additional alumni volunteers. The board and council serve as an advisory group to the university, working to strengthen bonds by promoting communication between all alumni and the UNH community. Working standing committees of the alumni council include Homecoming, Phonathons, Distinguished Alumnus Selection, Scholarship Ball, Special Activities and Public Relations.

A recently formed student alumni group will provide an additional link between students and alumni. Efforts will help increase students' awareness of the valuable role alumni can play in their lives and keep alumni informed of the special needs of students.

Athletics

William M. Leete, Jr., director

Recognizing the importance of a broad range of physical and emotional outlets to a well-balanced college experience, the University of New Haven seeks to involve the student on various levels of active participation in games and sports, as well as to provide an opportunity for community and student support for its varsity intercollegiate program.

Varsity Sports

During the fall, the university offers varsity cross country, football, soccer, women's tennis and volleyball. In the winter, men's and women's basketball as well as indoor track are the main attractions. During the spring, baseball, lacrosse, softball and outdoor track keep UNH athletic fields busy.

The athletic department coaching staff welcomes all interested candidates and invites active involvement in and support of its athletic programs.

The University of New Haven is a member of the National Collegiate Athletic Association, the Eastern College Athletic Conference, and the New England Collegiate Conference. Many of the Charger teams have earned national top-20 ranking in recent years. Our athletes have traveled extensively throughout the country to Florida, California,

Alabama, Illinois and Nebraska, as well as throughout the Northeast.

Intramural Programs

The intramural department sponsors a variety of events for interested students throughout the year. Tournaments and competition in touch football, basketball, handball, softball, racquetball, tennis and volleyball are offered. Team rosters are available in the athletic office and schedules are posted in the gymnasium.

Athletic Facilities

The north campus consists of Robert B. Dodds Stadium (with a multi-purpose natural surface field designed for football, soccer and lacrosse), six tennis courts, a softball field, a baseball diamond, an intramural field and a gymnasium.

The gymnasium houses two full-size basketball courts, a weight-training room, an exercise area, a racquetball court and locker and shower areas for students and faculty.

A valid university ID card is required for admittance to the north campus gymnasium or tennis courts during free play hours. The gymnasium will open for free play at times when regularly scheduled games and varsity team practices are not in progress. Students should take care to secure their lockers or leave properly identified valuables with the equipment manager when using any facility.

Campus Store

Barbara Farrell, manager

The university's campus store sells all necessary texts, new and used, required for courses at the university. It also carries school supplies, greeting cards, imprinted clothing, gifts, candy and a selection of paperbacks, newspapers and periodicals. The campus store buys back certain used texts throughout the year. It also handles class ring orders and film processing for the campus community and will be happy to place special orders for any books.

Special arrangements are made for students taking courses at off-campus locations to purchase required books.

Career Development Office

Pamela Francis, director

This office offers employment-related services to the university community. Among these are career counseling, advising, on-campus employment interviewing and extensive information about job opportunities.

Administrative and recruiting offices are located on the third level of the Student Center.

Career Development

To assist students in making appropriate career choices, individual/group counseling is available and is supplemented by several office resources. Special workshops on resumé preparation, interviewing skills and job research techniques are scheduled in both the fall and spring semesters.

In addition, the office maintains an extensive library of career information, vocational resources, brochures and annual reports.

A professional career testing service is also available for those students with questions about what career direction to pursue.

Student Employment

During each academic year, employer representatives visit the campus to interview graduating University of New Haven students, both at the graduate and undergraduate levels. While the Career Development and Job Placement Office is not an employment service and does not guarantee jobs, extensive listings of both full- and part-time positions are also maintained to provide a common meeting ground for employers and prospective employees. Undergraduate and graduate students will find this useful, both in locating part-time and full-time jobs while in school, as well as employment following graduation. Alumni seeking positions are encouraged to use the services of the office.

Employers wishing to list positions need only call or write, giving a description of the position available and other details. There is no placement fee charged for these services.

Information

The Career Development Office regularly publishes and circulates a monthly campus recruiting schedule the first week of every month during the academic year. Information such as career development events, Career Days, workshops, seminars, recruitment visits, employment outlook for graduates, job listings, job search hints, etc., are included. Career development information also appears in *Insight*, the alumni publication, and in the weekly student newspaper, *The Charger Bulletin*.

The recruitment schedule will be mailed to any member of the university community who wishes it and provides the office with a supply of stamped, self-addressed envelopes for the number of months desired.

Center for Learning Resources

Loretta K. Smith, director

The Center for Learning Resources, in Maxcy Hall, offers a tutoring service open to all students on campus, not just those in academic difficulty. The staff of instructors and student tutors provides tutoring in a variety of subjects including mathematics, engineering science, accounting, study skills, writing and computer science. All tutoring is free and no appointment is necessary. Daytime and evening hours are posted in the center. During the 1987 fall semester, the center provided more than 2,100 tutoring sessions to undergraduate students.

See also the section on the Developmental Studies program.

Cooperative Education Program

Cooperative education, known as Co-op, lets students explore their chosen careers by combining academics with practical, paid work experience.

For more detailed information, see the Cooperative Education section.

Counseling Center

Dr. Deborah Everhart, director

The Counseling Center offers services designed to help students with problems that may interfere with their academic, social or personal activities. The services provided include confidential, personal counseling, academic counseling, vocational counseling and testing, personality assessment and educational assessment. The Counseling Center also processes all withdrawals and leaves of absence from the undergraduate Day Division.

Development Office

Nikki Lindberg, director

The Development Office staff work with the president of the university, board of governors, faculty and staff to secure both short and long term funding for enhancement of the university's programs and facilities. Funds are sought for student financial aid, faculty development, equipment, library resources and other institutional opportunities for growth over and above what can be achieved from regular and anticipated university income.

National and local foundations, parents, students, alumni and friends support these efforts and contribute to the excellence of the university. Students play an active role participating in fund raising events and soliciting for the annual alumni fund.

Developmental Studies Program

Dr. Nancyanne Rabianski, director

The developmental studies program is designed to strengthen the basic skills of entering students. Courses within the program are taught by members of the faculty of the mathematics department and the English department.

The English department offers three developmental courses: Reading Strategies, E 101; English Fundamentals, E 103; and Oral Exposition, E 114. The three courses offer students a comprehensive study of the basic reading, writing and speaking skills necessary in using our language effectively. Fundamentals of Mathematics, M 103, is taught by the mathematics department.

Placement in these courses is determined by examinations given by the respective departments. Such placement becomes a first priority for affected students because the university believes such students can become successful college students only upon correction of skill deficiencies.

Please note these special provisions concerning E 101, E 103 and M 103. E 101 is a one-credit course. E 103 and M 103 each carry three college credits but cannot be applied toward students' degree programs. E 103 and M 103 usually meet for up to six hours per week to provide intensive help.

Complete descriptions of the developmental courses appear in this catalog as part of the course offerings of the mathematics department and the English department.

Disabled Student Services

Arlene Faiman, director

The Disabled Student Services Office coordinates all referrals regarding physically handicapped and learning disabled students. It provides guidance, assistance and information for students with disabilities. This office also coordinates the university's compliance with Section 504 of the H.E.W. Rehabilitation Act of 1973 and other governmental regulations.

All referrals and inquiries concerning any matters relating to disabled students, accessible facilities and/or reasonable accommodations should be directed to this office.

Health Services

Phyllis Landry, director

The University Health Services is open to all university students without charge. Located on the ground level in the rear of the Parc

Vendome Residence Hall, the center is staffed with two registered nurses and two part-time physicians. Health Services provides initial care for minor illnesses and injuries, and diagnosis, referral and follow-up care for more serious conditions. Also provided is care and counseling in health related issues. Health Services coordinates the health insurance program that is sponsored by the university.

A part of the health program is a weekly women's clinic which takes place at the health center and covers gynecological problems, birth control and sex-related issues.

One requirement of the health center is that all students entering the day division provide documentation of their medical and immunization history by completing the health form provided by the Undergraduate Admissions Office and returning it to the Health Services Office. This requirement is in compliance with the State of Connecticut Health Department's guidelines for immunization and disease control.

International Services

Mary F. Idzior, director

The university has a large and active international student program with more than three hundred students from more than 55 countries. In addition to assisting students with immigration and adjustment problems, International Services works with the International Student Association to coordinate and plan cultural, educational and social programs.

Meals Plans

Director to be appointed

The Student Center houses three dining areas: a snack bar in the Charger Café is located on the main floor, a deli/grill area and a full menu dining commons are located on the ground floor.

Three meal plan options are offered to fit the needs of freshmen boarders and three additional plans are available for apartment and off-campus students. Purchasing a plan, while highly recommended for all students, is required for students living in the freshman residence hall. Meal plan contracts are available at the Dining Services Office.

Minority Student Affairs

Dr. James E. Martin, Jr., acting director

The director of the Minority Student Affairs Office works closely with students, faculty and administrators in developing and implementing educational programs for minority students. The office also provides academic and personal advising for students to assist them in their growth and transition to the various facets of the university's environment.

The Minority Student Affairs Office serves as a catalyst in building a support network between the community at large and UNH. Even though the Minority Student Affairs Office has a special interest in issues of Black, Hispanic, Asian and American Indian students, all students are encouraged to take advantage of the financial, academic and personal advising. In addition, all students are also encouraged to participate in the various educational, social and cultural programs.

Residential Life

Rebecca D. Johnson, director

The character of residential living is often a good indication of the spirit and life on campus. For this reason the University of New Haven strives to make its residential facilities places which encourage academic and personal development.

On-campus university housing includes a suite-style residence hall for freshmen, with two- and three-student bedrooms arranged in groups of six around a common living room and bath. Apartment-style residence halls are available for upperclassmen. All on-campus residences are furnished and include lounges and laundry facilities. Resident staff members and active student hall councils work to promote an atmosphere conducive for study and social development in each hall. University housing is occupied on an academic year basis.

All students living in the freshman Residence Hall are required to purchase a university meal plan; cooking is not permitted. Students in the upperclassmen residences have the option of taking a meal plan or providing for their own meals or a combination of both.

The Office of Residential Life maintains a listing of available off-campus housing. Because of the limited number of off-campus apartments available in the immediate area, the university is unable to guarantee off-campus accommodations. While university staff will be happy to discuss and advise students undertaking a lease with an off-campus landlord, the university cannot take responsibility for that lease. Students are responsible for any contract undertaken for housing and should carefully consider the nature of that contract and the responsibilities incurred.

Student Center

The Student Center provides a focal point for all student activities. Offering lounges, student offices, a game room, a large cafeteria and a snack bar, the facility has been designed to serve as a center for the student's non-academic college interests.

The Charger Café, also located in the Student Center, opens daily at 4 p.m. serving snacks and beverages. Live entertainment and films are often presented in the café on weeknights.

WNHU Radio

Rose Majestic, general manager

WNHU, the university's student-operated FM stereo broadcast facility, operates throughout the year on a frequency of 88.7 MHz at a power of 1,700 watts. This extracurricular activity, open to all undergraduate or graduate students, serves southern Connecticut and eastern Long Island with the best in music, news and community affairs programming. The WNHU broadcast day consists of locally produced shows as well as various programs provided by several public networks.

Most WNHU activities in programming, business and engineering operations are performed by students in the university's day, evening and graduate division. The station will train all qualified students in their respective areas of interest.

Women's Affairs

Supported by a number of women faculty and administrators with the help of interested students, Women's Affairs coordinates a variety of programs of special interest to women.

Some of the innovative programs which have been developed include the Women's Health Center, programs targeted to the returning adult woman student, a mentor program for freshmen women, and women's studies course offerings.

Further details are available at the Dean for Students office.

ADMISSION AND REGISTRATION

Robert Caruso, dean of admission services
Laurie G. Saunders, director of undergraduate admission

Call toll-free:
1-800-DIAL UNH
(1-800-342-5864)

The University of New Haven welcomes applications from men and women of all races, economic levels, religions and geographic areas.

Students wishing to take any course in the university, whether or not they seek a degree, must first satisfy the admission requirements and follow the admission procedures specified below. In general, all applicants must have graduated from an accredited secondary school or passed the state high school equivalency examination to be considered for admission.

Students should note that the different schools of the university may have additional admission requirements which are discussed in detail in subsequent pages of this catalog.

You become a student of the University of New Haven only after you have completed the steps listed below under Admission Procedure, selected and registered for courses for your first semester, and made the appropriate tuition and fee payments.

Admission Procedure — New Students/ Freshmen

- Secure an application form from the Admissions Office of the university or from your high school guidance counselor. An application is also located in the back of the catalog.
- Submit the completed form with the non-refundable application fee.
- Request your secondary school to forward an official copy of your academic transcript directly to the Admissions Office. If you are currently attending an educational institution and will be sending us an incomplete transcript, it is your responsibility to send us your final transcript as soon as it becomes available.
- Arrange for results of Scholastic Aptitude Test (S.A.T.) or American College Testing Program (A.C.T.) examinations to be sent directly to the Admissions Office.
- A decision on your application will not be made until we receive: your completed application, your non-refundable application fee, your high school and college (if applicable) transcripts and your admission test scores. If necessary, recommendations and/or a personal interview may be requested.

Admission Procedure — Transfer Students

The University admits transfer students for both fall and spring semesters. The procedure for transfer students to follow when applying to the university is as follows:

- Complete the admission application included in this catalog. Return it to the Undergraduate Admission Office with the non-refundable application fee.

- Arrange to have official transcripts from all colleges/universities attended forwarded to the Undergraduate Admission Office.
- An official copy of your secondary school transcript, including date of graduation, must also be submitted. A satisfactory General Equivalency Diploma (G.E.D.) is acceptable in place of a high school diploma.
- Students who have completed less than one full year (30 semester hours) of college level work must submit official test scores of the Scholastic Aptitude Test (S.A.T.) or American College Test (A.C.T.).
- Students who have completed more than one full year of college level work are not usually required to submit standardized test scores. However the Admissions Office reserves the right to request this information if necessary.
- In most cases, transfer students will receive a tentative transfer credit evaluation at the time of acceptance. To help expedite the evaluation procedure, we ask that you forward a current catalogue from all institutions attended with your application materials.

Admission Procedure — International Students

The university admits international students for both fall and spring semesters. Official academic transcripts from all institutions previously attended, including secondary school, must accompany the admission application. Proficiency in English must be demonstrated. Freshman applicants must submit official reports of TOEFL scores. Students who have been educated in English-speaking systems may substitute the SAT or ACT for the TOEFL. Depending on their academic background, students transferring from accredited institutions within the United States may also be required to submit TOEFL scores. Verification of financial support also must accompany the admission application.

Academically qualified international applicants who do not meet the English language proficiency requirement (normal guidelines are 500 TOEFL or 80 MTELP) may elect to be evaluated and, if necessary, to study English at the ELS Center in Bridgeport, Connecticut. Completion of the ELS Language Center program (Level 109) is required to satisfy the English language requirement at this university. Students wishing to take advantage of this opportunity to improve the level of their English competency will receive a letter of conditional acceptance to the university contingent upon successful completion of the ELS program. An I-20 document will also be issued for the purpose of evaluation and, if necessary, study at ELS and matriculation at the University of New Haven.

Admission Procedure — Evening Division

The procedure for admission to the Evening Division is very similar to the Day Division procedure. It is handled through the Office of the Division of Evening Studies and can often be accomplished in one visit.

The procedure for applying to the Evening Division is as follows:

1. Write or telephone the Evening Division to arrange for an interview. The telephone number is (203 932-7231.
2. Secure an application and submit the form along with the non-refundable application fee.
3. Request your secondary school and/or previous colleges to forward copies of your official academic transcripts directly to the Evening Division.

4. Arrange to take the University of New Haven placement examinations in English comprehension and mathematics. Placement test results are used for registration purposes.
5. A decision on your application will not be made until we receive: your completed application, your non-refundable application fee, and your high school and college (if applicable) transcripts.

Please see the Division of Evening Studies section of this publication for more detailed information.

Conditional Admission

There are a limited number of openings in the day division of the university for students who appear to have potential for academic success that has not been realized. At the discretion of the director of admissions, such students may be granted conditional admission to the university.

Students granted conditional admission may be required to take certain courses designed to strengthen their foundation in basic skills and prepare them for regular college courses. See the developmental studies program section for more information.

Placement

Incoming students are placed in courses in English and mathematics according to their individual abilities as demonstrated through the university testing program, S.A.T. scores and high school or previous college records.

Some students may be placed in courses designed to upgrade their skills in particular subject areas and prepare them for more advanced courses at the university.

Deferred Enrollment

A student who is offered admission to the University of New Haven may choose to defer enrollment for up to one full year from the originally intended semester of entrance. (A student may not enroll in college level courses at another college or university during this time period.) Students must notify the Admissions Office in writing **prior** to the beginning of the semester for which they were accepted if they intend to defer their enrollment.

Registration

Joseph Macionus, university registrar

Registration is the process of selecting classes each term. Registration includes faculty advising, a preliminary choice of classes and fee payment. Final registration is not complete without these steps.

Students have assigned faculty advisers who provide guidance on academic matters and help the students with the registration process. Normally, the adviser is the chairman or coordinator of the student's major course of study or another faculty member designated by the chairman.

There are two parts to registration: the completion of the registration forms and the payment of tuition. There is a penalty fee for delaying either of these two processes beyond the end of the registration period.

Registration dates and procedures for currently enrolled day students will be posted in advance. New students will receive registration procedures by mail. New students must register in person. A separate registration is required for each of the semesters,

for summer sessions and for the winter intersession.

Social security numbers will be used on student records; students should be sure to bring their number when registering. Prospective students who do not have a social security number should apply for one before registration. Students from other countries who do not have social security numbers will be given a temporary number by the university; however, they are encouraged to apply for a social security number as soon as possible.

Students are urged to plan their programs carefully before completing the registration forms in order to avoid the need for requesting changes. Once the registration is completed, students are charged the change of registration fee for each addition made. The fee is payable upon completion of the add form.

Please Note: No new full-time day student will be permitted to register for classes until:

1. The non-refundable acceptance fee has been paid.
2. Tuition **in full** for the semester has been received. Students relying on financial aid to cover all or part of a semester's expenses must present evidence of the amount of money awarded.

No new part-time evening student will be allowed to register for classes until tuition payment or financial aid arrangement have been made.

Course Overload Restrictions: Day Students

Day students who wish to register for more than 15 semester hours in any one semester must follow special procedures and guidelines.

If the total number of semester hours to be attempted is from 16 to 19 and is in excess of the hours specified on the student's work sheet, the student must obtain written permission from his or her adviser and department chairman and, in most instances, must have a cumulative quality point ratio of 3.20 or higher.

If the total number of semester hours to be attempted is more than 19, the student must obtain written permission from his or her adviser and department chairman, academic dean, and the Provost's Office. Such students are required to have a cumulative quality point ratio of 3.20 or higher.

Course Overload Restrictions: Evening & Southeastern Connecticut Students

Evening and southeastern Connecticut students are restricted to a maximum of 11 credit hours in any given term or semester including the combined sessions of summer school.

Students wishing to take more than 11 credit hours per term or semester, must complete the Internal Transfer Form in order to change student status to that of a full time day student. Day Division tuition rates would then apply.

In some limited circumstances, evening or southeastern Connecticut students nearing graduation may be allowed to exceed the 11 credit hour per term policy. Only students who satisfy the following criteria will be eligible.

1. 12 or more credit hours must be needed for graduation and successful completion of the registered courses would enable graduation.
2. Only courses required for graduation are included.
3. Only Evening Division courses are being taken, unless a given course is unavailable in the evening.

4. Evening Division status was continuously maintained during the previous semester.

Students must apply for this credit overload by obtaining the appropriate form from the Evening Division and securing the approval of the department chairman and the dean of the School of Professional Studies and Continuing Education.

ACADEMIC REGULATIONS

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Ways of Earning Credit

Academic Credit

Academic credit is granted on a credit hour basis. In addition to successfully completing regular courses, students may earn credit by taking independent study, coordinated courses, crediting exams or CLEP exams or by transferring previously awarded credit from other institutions. These methods are detailed in the Academic Regulations section.

Transfer of Credit to the University

Students may transfer to the university after completing academic work at other institutions. Applications should be made to the director of admissions. If feasible, potential transfer students should visit the university and discuss their transfer credit situation with the chairman or dean administering the curriculum of interest. Normally, the university accepts credit from regionally or nationally accredited colleges on an equivalency basis.

Students transferring from another institution must possess at least a 2.00 quality point ratio based on a four point scale. Credit is normally granted for those courses completed with at least a grade of C, or its equivalent. Credit transferred from a two-year institution is generally limited to 60 credit hours, unless otherwise approved in writing by the dean of the school in which the student seeks to enroll.

When a student's application is complete, a tentative analysis is made on award of transfer credit available. Then final decisions on transfer credit are made by department chairmen and must conform to school and university policies. Credit is not awarded officially until the student has completed at least 12 credits in good standing at UNH. Prospective students may be required to take qualifying or placement examinations for specific courses.

Plans of study for a University of New Haven degree should be agreed upon by both the transfer student and the department early in the first term of attendance in order to avoid course duplication and academic discontinuity.

For Transfer of Student Status, see following pages.

Courses Available at Other Colleges

University of New Haven students interested in taking courses at other colleges and universities should discuss this matter directly with their departments and consult the statement of policy established by the undergraduate school in which they are enrolled.

Coordinated Course

In order to maintain continuity in a degree program, students are encouraged to use UNH Summer Sessions and Winter session; however courses taken by matriculated UNH students at regionally or nationally accredited institutions may be designated as "coordinated courses." Credit for such courses is accepted and posted on the students' permanent records and the grades are included in the students' quality point ratios.

Prior authorization for a "coordinated course" designation must be obtained from both the departments housing the student's major and the analogous course at UNH. The appropriate form must be obtained at the Registrar's Office, approved, and returned to that office before the course in question begins. Normally, approval is only granted for those courses which are analogous to courses offered at UNH and/or are standard courses in a given discipline and which are unavailable at UNH because of frequency offerings, cancellation, etc., or inaccessible to the student because of temporary residency at a distant location.

Students must be continuously matriculated at UNH while taking a coordinated course. Approval for a coordinated course will become void upon dismissal of the student.

Advanced Placement

The university recognizes the program of advanced placement available to talented high school students and operated by the College Entrance Examination Board. Students satisfactorily completing advanced placement courses in high school and the final examination prepared by the Educational Testing Service (E.T.S.) may be given appropriate college credit if their courses are similar to those offered at the University of New Haven.

Educational Testing Services Advanced Placement examinations are graded from 1 to 5. Credit is allowed where the grade earned is 3, 4 or 5. Students desiring to submit advanced placement courses for college credit should have all results of these courses and tests sent in with their application to the Admissions Office.

The University of New Haven accepts credit by examination from the College Level Examination Program (CLEP). The passing percentile for CLEP and subject examinations is 50. Credit will be evaluated by the appropriate department chairman.

Crediting Examinations

A student who has at least a 2.00 cumulative QPR and has independent knowledge of the content of an undergraduate course offered by the university may, with the approval of the respective department chairman and dean, take a special crediting examination in lieu of taking the course.

Students are reminded that they must earn at least 30 semester hours through regular course work if they are to meet the residency requirements for graduation.

Students may not take crediting examinations during the first or last semesters in which they are enrolled.

Students should contact the Evening Division for latest developments in alternative credit routes for adults.

Advanced Study

Advanced study courses are offered to qualified students in the departments offering the degrees of bachelor of science or bachelor of arts. These courses may include a thesis, tutorial work or independent study which permits the student to work intensively in areas of special interest.

Independent Study

In all courses of independent study, including internships, case studies, reading programs, practica, theses and work-study experiences, the student and an adviser must jointly file a project outline with the registrar within four weeks of the beginning of the course. This outline shall serve as the basis for determining satisfactory completion of course requirements. In the case of intensive or condensed course work, project outlines must be filed at least one week prior to the last day of the session.

Normally, independent study is restricted to no more than six credits and only open to seniors, juniors and exceptionally qualified sophomores. Students must have at least a 3.0 quality point ratio.

Regularly scheduled courses, that is, those offered at least once every four semesters, are not normally acceptable as independent study.

Students should contact the Evening Division for new developments in alternative forms of independent study.

Academic Status and Progress

Full-time Students

Full-time student status is attained by registering for a minimum of 12 charge credits per semester, or equivalent term, on either a matriculated or non-matriculated basis. Such status is continued to a succeeding term provided a minimum of 12 credits are completed in the term of record. Completion is defined as receipt of a letter grade of **A + through D −, F, S** or **U;** other letter grades do not signify course completion.

Full-time students are eligible for all daytime student activities and benefits, and are subject to Day Division tuition charges and other relevant fees. It is assumed that full-time students will select the great majority, if not all, of their courses from Day Division schedules, unless needed courses are unavailable in the Day Division.

Part-time Students

Students who register for two of 11 **charge** credits during a semester maintain part-time status. Part-time status may be held in either the day division or the evening division.

Matriculation

Matriculation is the formal act of registering to study for a specific degree offered by the university. Matriculation is, therefore, not automatic. A student must request matriculation by seeking admission to a specific university degree program. Formal acceptance into a degree program shall constitute the granting of matriculation.

Students seeking credit to be transferred to another institution, or who wish simply to audit courses or to take them without working toward a degree, need not matriculate. Non-matriculated students must register to take their chosen courses, however, and will be allowed to enroll in courses only as space permits. It is the student's responsibility to seek matriculation should he or she later decide to pursue a University of New Haven degree.

Class

In order to be classified as a sophomore, a student must have completed 27 credit hours in an approved program; a junior, 57 credit hours; a senior, 87 credit hours; a fifth-year student, 117 credit hours.

Transfer of Student Status

Undergraduate students are able to change their student status according to the following procedure:

Day to Evening Transfer. Full-time day students who wish to become part-time evening students may do so by obtaining the Internal Transfer Form in the Registrar's Office. Upon approval, this form is then brought to the Evening Division for processing and registration of courses.

Please note: Evening students are restricted to taking courses in the evening unless they are unavailable and may not exceed 11 credit hours per term.

Evening to Day Transfer. Part-time evening students who desire to take more than 11 credit hours per term must become full-time day students. This process requires the student to obtain the Internal Transfer Form from the Evening Division. Upon approval, the form is then brought to the Registrar's Office for processing and registration of courses.

Major

Each matriculated student must designate a specific degree program, called a major. Major program requirements are detailed in the catalog under the relevant department listing. A cumulative 2.0 QPR in major courses is required for graduation.

Minor

Most academic programs have an associated minor program, which normally includes five to seven courses. The university encourages students to augment their major program with an associated minor. Details can be obtained from the appropriate department.

Grading System

The following grading system is in use and, except where otherwise specified, applies both to examinations and to term work. The weight of a final examination grade is a matter individually determined by each instructor. See Quality Point Ratio section following for additional information.

A — Superior
B — Good
C — Fair
D — Lowest passing grade.
F — Failure or withdrawal after the first half of the semester with unsatisfactory work.
I — Incomplete. Indicates one of the following two possibilities:
1. Some work remains to be completed to gain academic credit for the course. An **I** is assigned in the first instance at the discretion of the instructor. This assignment shall not be automatic but shall be based upon an evaluation of the student's work completed up to that point and an assessment of the student's ability to complete course requirements within the allowed time limit. Work to remove an **I** must be performed within the 12 months following the last day of the semester in which the **I** is incurred or earlier if the instructor so requires. When such work is completed, the instructor will assign a final grade for the course.
2. The student has failed to complete unfulfilled academic assignments within the specified twelve months, and the grade of **I** has been entered on the student's permanent transcript. **No further opportunity to complete the course will be available to the student after this time.**

W — Withdrawal. Indicates withdrawal from the course after the first half of the semester with satisfactory work in the course up to the time of withdrawal, or withdrawal from the university after the twelfth week of classes. The grade of **W** will not be assigned to any student who has taken the final examination in the course.
S — Satisfactory. Given only in non-credit courses.
U — Unsatisfactory. Given only in non-credit courses.

Grade Reports

Reports of the final grade in each subject will be mailed to the student soon after the close of each semester. The university will release grades to a student's employer upon request, but only if the student has given prior written authorization.

Quality Point Ratio

The academic standing of each student is determined on the basis of the quality point ratio earned each semester. The quality point ratio is determined by using the quality points assigned to each student's grade.

To determine the total number of quality points earned during a semester, each letter grade is assigned a quality point value:

A+	= 4.3	quality points
A	= 4.0	quality points
A−	= 3.7	quality points
B+	= 3.3	quality points
B	= 3.0	quality points
B−	= 2.7	quality points
C+	= 2.3	quality points
C	= 2.0	quality points
C−	= 1.7	quality points
D+	= 1.3	quality points
D	= 1.0	quality points
D−	= 0.7	quality points
F	= 0.0	quality points
I	= 0	quality points
W	= 0	quality points
S	= 0	quality points
U	= 0	quality points

The quality point value for each grade earned during a semester is multiplied by the number of credit hours assigned to that course as listed elsewhere in this catalog. The sum of these points is the total number of quality points earned during the semester.

This sum is divided by the number of credit hours completed (hours from courses with grades of **A + through D −, F, S** or **U**) to obtain the quality point ratio.

The cumulative quality point ratio is obtained by calculating the quality point ratio for all courses attempted at the University of New Haven.

See the previous "Grading System" section for more information.

Satisfactory Progress

For a student matriculated in the Day Division, satisfactory progress toward a degree is defined as successful completion of 24 credits applicable to that degree program during an academic year. This should include registration for at least 12 credits per semester and successful completion of at least nine credits per semester. "Completion" is defined as the receipt of a final letter grade (**A +** to **F**) but not the receipt of a Withdrawal (**W**) or an Incomplete (**I**). "Successful completion" is defined as the receipt of a passing letter grade (**A +** to **D −**). Decisions on student status are made by the university registrar.

Students are required to maintain a minimum cumulative quality point ratio in accordance with the following scale:

Quality point ratio of 1.50 for 3 to 30 credit hours attempted
Quality point ratio of 1.60 for 31 to 45 credit hours attempted
Quality point ratio of 1.70 for 46 to 60 credit hours attempted
Quality point ratio of 1.80 for 61 to 75 credit hours attempted
Quality point ratio of 1.90 for 76 to 90 credit hours attempted
Quality point ratio of 2.00 for 91 or more credit hours attempted

Appeals involving extenuating circumstances may be addressed to the chairman of the Faculty Senate for resolution by appropriate Faculty Senate committees

Dean's List

The dean's list honors students who demonstrate excellence in their academic performance. Full-time students who earn a quality point ratio (QPR) of 3.50 or better in any one semester will be appointed to the dean's list for that semester.

Part-time students who have accumulated a minimum of 14 credit hours of course work at the university will automatically be considered for the dean's list at the end of each semester. A cumulative quality point ratio of 3.50 or better is required.

Probation and Dismissal

Failure to maintain satisfactory progress as defined below will place students on academic probation for the following semester of enrollment. Students are automatically dismissed when they receive a third probation or when their quality point ratio for any one semester is less than 1.0.

First-semester freshmen earning a quality point ratio less than 1.0 are automatically referred to the Academic Standing and Admissions Committee which may specify conditions for continued enrollment. A record of committee action shall appear on the student's permanent record. Committee decisions are normally viewed as final, but may be appealed by following the process indicated in the section on Dismissal/Readmission Procedure.

Students who fail to maintain the minimum QPR for satisfactory progress, but are not dismissed, are placed on academic probation. Probation serves as a warning that lack of improvement will eventually prevent satisfaction of graduation requirements. Because UNH is very concerned that probationary students become successful, counselors are assigned to assist such students.

Academic probation of transfer students is determined in accordance with the same graduated, minimum cumulative quality point ratio scale as for non-transfer students detailed above. In determining a transfer student's academic standing, the student's total semester hours completed—those transferred from other colleges plus those received at the University of New Haven—are applied to the minimum cumulative quality point ratio scale.

Repetition of Work

A course which a student has completed may be repeated only with the consent of the chairman of the department in which the course is listed. If a student achieves a higher grade in the second attempt, that grade rather than the first will be used to compute the cumulative quality point ratio. However, both the higher and lower grades in the course remain in the student's permanent record.

Dismissal/Readmission Procedure

Students are dismissed from the university at the end of each semester or trimester on the basis of the criteria listed in "Probation and Dismissal." Notification is made by the Provost via registered letter. This letter will specify the time span for appeal (normally five days) and the criteria for appeal.

Upon request by the student, an appeal will be heard by the Academic Standing and Admissions Committee. If the appeal has merit and is granted, the student will be so notified by the Provost. The committee may require special arrangements or conditions to allow the student to continue. Satisfaction of such conditions would be a priority obligation for the student.

If there is no appeal or if an appeal is denied, the student will be removed from any pertinent class rolls and will be prohibited from taking any courses at UNH for at least one semester or trimester. Dismissal action will be noted on the student's academic transcript.

At the end of the dismissal period, the student may apply for readmission through the appropriate admission office. Refer to the section on "Readmission" below.

Readmission

Application for readmission after students have been dismissed normally will be considered only after the lapse of a semester and only when students provide evidence which indicates probable success if readmitted.

Unusual circumstances may permit earlier application if a student's dean and department chairman successfully petition the Academic Standing and Admissions Committee to review the applicant's case.

Requests for readmission should be submitted in writing to the director of admission for transfer to the chairman of the Academic Standing and Admissions Committee at least three weeks before the opening of the semester, and should include evidence supporting the student's belief that he or she will succeed if readmitted.

A student who has been absent from the university for one or more semesters must submit a new application and pay another application fee. If the student has attended another college or university an official academic transcript is required from that institution. Following the receipt of the above material, action will be taken on the application for readmission. Since the student is not matriculated at UNH during this period, no coordinated courses will be accepted.

Readmission is not automatic. The Academic Standing and Admissions Committee reviews each application and makes a decision on acceptance, rejection or conditional acceptance of students.

Changes

Dropping/Adding a Class

Students who wish to make a change in class schedule must complete a "Drop Slip" or an "Add Slip" or both. These are available from the Registrar's Office. All "Adds" require approval of the instructor and the student's adviser. A fee will be charged for adding courses after the announced deadline.

The last date to add classes is one week into the semester, and is listed in the academic calendar. No classes may be added after this date without special approval from the instructor, the department and the dean. All changes should be completed prior to the second week of class so that students may be properly registered in the correct sections.

Withdrawal from a Class

Students desiring to **withdraw formally from a class** may do so before the last day to drop courses published in the academic calendar. Formal withdrawal removes the student's name from class roll and removes the course listing from the student's record and transcript. The student must

obtain a "Drop" card from the Registrar's Office, complete it and sign it. Signatures of the instructor and the student's academic adviser must be obtained. The card is then returned to the Registrar's Office.

Students withdrawing from a class after the last day to drop courses will receive either a grade of **W** or **F**. The grade assigned by the instructor will depend on whether or not the student's work in the course has been satisfactory up to the time of withdrawal. If a grade of **W** is assigned, it will appear with the course name on the student's record and transcript.

Filing a "Drop" slip does not qualify the student for cancellation of any university tuition or fee.

Changing a Major

Students wishing to make a change in major or program must meet with the chairman of the department into which they wish to transfer. In consultation with the student, the chairman will prepare a change of major form and forward it to the Registrar's Office.

Leave of Absence

Matriculated students may interrupt continuous enrollment by electing to take a leave of absence from the university. The purposes may be for medical or personal reasons, to pursue a program of study at another institution or to engage in other off-campus educational experiences without severing their connection with the University of New Haven through withdrawal. Before taking a leave of absence, students are encouraged to discuss their particular situation with an academic adviser, the dean of their school, the dean of student affairs, or a counselor in the Counseling Center.

The rules regarding leaves of absence are:

- All non-international students must file for a leave of absence through the Counseling Center; international students must initiate the leave of absence through the International Services Office.
- The Counseling Center must receive clearance from the Bursar and the Dean of Student Affairs and Services for all leaves of absence.
- Students who are on university disciplinary probation are **not** eligible for a leave of absence.
- A student who has been dropped or dismissed from the university for disciplinary or academic reasons is **not** eligible for a leave of absence until properly reinstated.
- A student who has withdrawn as a degree candidate is **not** eligible for a leave of absence. If a student withdraws while on leave of absence, the leave is invalidated.
- Leaves are not required or granted for summer periods alone.
- Normally, leaves are not approved for a period longer than two semesters. Under special circumstances, a leave of absence may be approved for a maximum of four semesters or two years.
- If a student wishes to return later than the semester originally stated on the leave of absence form, the person must apply for an extension of their leave of absence through the Counseling Center, not to exceed the maximum period as outlined above.
- A student who plans to enroll for course work at another accredited institution during a leave of absence should review program plans with his or her academic department adviser to verify the eligibility for receiving credit at the University of New Haven.
- Taking a leave of absence may affect a student's financial aid. All students receiving financial aid are encouraged to contact the Financial Aid Office before taking a leave of absence.

- A student who fulfills the conditions of an approved leave of absence may return to the university and register for classes without applying for readmission; the student may preregister for the semester in which they plan to return.
- All applications for leaves of absence after the twelfth week of classes must be approved by the Provost's Office before they are considered final.
- For leaves of absence completed **during** the first twelve weeks of the semester, the student's transcript will contain no record of courses attempted or grades received during that semester.
- Leaves of absences completed **after** the twelfth week of the semester result in the receipt of the grade of "W" for all courses in which the student is registered at the time of taking the leave of absence.

Withdrawal from the University

Students desiring to **withdraw from the university** must complete the necessary form at the Counseling Center and notify each of their instructors. It is the student's obligation to complete this formal procedure. Failure to do so leaves the student liable for all of the current semester's tuition and fees, and may result in grades of **F** being assigned in the student's courses.

Formal withdrawal must be completed during the first four weeks of the semester in order to obtain any cancellation of tuition and fees (as described in this catalog) unless there are clearly extenuating circumstances and a formal appeal is made through the Counseling Center.

Formal withdrawal which is completed at any time **during** the first twelve weeks of the semester will assure that the student's transcript will contain no record of courses attempted or grades received during that semester.

Formal withdrawal which is completed **after** the twelfth week of the semester will result in the receipt of the grade of **W** for all courses in which the student is registered at the time of withdrawal. Students should note that formal withdrawal after the twelfth week cannot be regarded as complete unless, in addition to the above requirements, it has been approved by the Provost's Office.

Because of the serious ramifications of formal withdrawal from the university, students contemplating this action should discuss the matter with their adviser or a counselor as soon as problems are perceived.

Involuntary Administrative Withdrawal

A student will be subject to involuntary administrative withdrawal from the university, or from university housing, if after evaluation by a Counseling Center or Health Service professional, or their designee, and after a withdrawal hearing, it is determined that the student is suffering from either a physical disorder and/or a mental disorder, and as a result of this disorder:

(a) engages or threatens to engage, in behavior which poses a danger of causing physical harm to themselves or to others or
(b) engages, or threatens to engage, in behavior which would cause significant property damage or directly and substantially impede the lawful activities of others.

These standards do not preclude removal from the university, or university housing, in accordance with provisions of the student judicial system, residence hall occupancy agreement and related rules, regulations and publications of the university.

The procedures which will be followed in the case of an involuntary administrative withdrawal are outlined in the Student Handbook.

Transfer of Credit from the University

Credits may be transferred from the University of New Haven, a fully accredited university, to any other college or university merely by obtaining a letter of authorization from the school to which the transfer of credit is desired.

General Policies

Academic Honesty

Academic dishonesty is not tolerated at the University of New Haven. All students are responsible for reading and understanding the statement on academic honesty in the student handbook.

Violation of university standards for academic honesty, including plagiarism, will be a sufficient reason for an **F** in the course and will be reported to the dean for students. A second violation may be cause for expulsion from the university.

Plagiarism is defined as the unacknowledged use of another person's work or the submission of the same work for more than one course without expressed written permission in advance.

Attendance Regulations

Every student is expected to attend all regularly scheduled class sessions. Specific course attendance guidelines are established by the academic departments or each individual faculty member.

From time to time, it may become necessary for the university to compile attendance records for every course in order to meet the needs of regulatory agencies, accrediting bodies or for other purposes.

In addition to excused absences for university-sponsored activities, a maximum of two weeks of absences will be permitted for illness and emergencies. The instructor has the right to dismiss from the course any student who has been absent more than the maximum classes allowed. Please refer to the student handbook for further clarification of attendance requirements.

Make-up Policy

Make-up examinations are a privilege extended to students at the discretion of the instructor, who may grant make-up examinations to those students who miss an examination as the result of a medical problem or a personal emergency. On the other hand, the instructor may simply choose to adopt a "no make-up" policy. If an instructor does choose to offer a make-up test, he/she has two options: 1) to use university proctors, if available, in which case the student must pay a make-up exam fee for regular semester examinations and for final examinations; 2) to make private arrangements to offer the examination, in which case the make-up exam fee is charged at the instructor's discretion.

Graduation

Graduation Criteria

Matriculated students are required to petition the registrar for graduation in the term immediately preceding their anticipated commencement. Forms, schedules and graduation fees are published each term by the Registrar.

Graduation is not automatic. Petitions, once filed, ensure that a student's record will be formally assessed in terms of degree requirements, and that it will be submitted to the faculty and the Board of Governors for final approval. A petition may be denied by the Registrar if

graduation requirements are not met. If a petition is approved, a degree will be awarded at the appropriate commencement.

A degree will be conferred by the Board of Governors when a student has satisfied all program requirements and has met the following university requirements:

1. successfully petitioned the registrar and paid all graduation fees;
2. earned a cumulative quality point ratio of no less than 2.0 in all courses applicable toward the degree;
3. earned a cumulative quality point ratio of no less than 2.0 (or higher if required by individual department) in all courses in the student's major field of study;
4. passed the university's Writing Proficiency Test;
5. been recommended by the faculty;
6. met all financial and other obligations and conformed to any local, state or federal law concerning graduation, and;
7. met the residency requirements of the university.

Residency Requirements

The residency requirements of the university is 30 credit hours taken at West Haven or at one of the university's off-campus centers. This requirement applies to all degrees, undergraduate and graduate.

To ensure depth of study, the residency requirement must include 12 credit hours of work in the declared major for an associate degree, and 18 credit hours for a bachelor's degree. Exceptions may be granted only by the dean administrating the major.

Writing Proficiency Examination

Because the University of New Haven believes that good writing skills are essential for success, it requires all its undergraduate students to demonstrate such skills before it will confer a bachelor's degree.

All students must pass the University Writing Proficiency Examination as a requirement for graduation. No student will be eligible to receive the B.A. or B.S. degree unless this examination is passed. All students must take this examination during the first semester after the completion of 57 credit hours. Failure to take the examination may preclude continuous registration.

The examination will consist of the writing of an impromptu theme on one of several topics of current interest. If the student's syntax, punctuation, and diction are in accord with the conventions of standard English and if the argument or exposition is clear and coherent, he or she will pass. If the student's writing is found to be deficient in these respects, notice of the unsatisfactory performance on the examination will be sent to the student and to his or her academic adviser.

Students who fail the examination must take it again each subsequent semester in which they are enrolled until the examination is passed. Those who fail are encouraged: 1) to enroll in E250, Expository Writing; or 2) to utilize the services of the Center for Learning Resources; or 3) to do both, to help them to improve their writing proficiency. Passing E250 and/or utilizing the Center of Learning Resources does *not* satisfy the University writing proficiency requirement. In no case shall the requirements for a four-year degree be completed unless the Writing Proficiency Examination has been passed.

Honors

Honors may be conferred upon candidates for graduation according to the following standards:

1. An associate degree **With Honors** is awarded to students who have a quality point ratio of 3.25 for the credit hours specifically required for the degree program from which they are being graduated and who have taken 30 or more hours of required work at this university.
2. An associate degree **With High Honors** is awarded to students who have a quality point ratio of 3.50 for the credit hours specifically required for the degree program from which they are being graduated and who have taken 30 or more hours of required work at this university.
3. The bachelor's degree **Cum Laude** is awarded to students graduating with a cumulative quality point ratio of at least 3.50, who have taken 60 or more credit hours of required work at UNH and who have completed all the suggested courses within their curriculum.
4. The bachelor's degree **Magna Cum Laude** is awarded to students graduating with a cumulative quality point ratio of at least 3.70, whose quality point ratio in all courses counting toward their major is at least 3.70, who have taken 60 or more credit hours of required work at UNH, and who have completed all the suggested courses within their curriculum.
5. The bachelor's degree **Summa Cum Laude** is awarded to students graduating with a cumulative quality point ratio of at least 3.90, whose quality point ratio in all courses counting toward their major is at least 3.90, who have taken 60 or more credit hours of required work at UNH, and who have completed all the suggested courses within their curriculum.

In determining elgibility for degrees with honor transfer credit, credits earned by crediting examination and electives in excess of those required will not be considered. Only the cumulative quality point ratio for courses completed at the University of New Haven is considered in determining a student's eligibility for honors.

TUITION, FEES AND EXPENSES

The tuition and other expenses listed in this section reflect the charges for the 1987-88 academic year. The tuition charges for the 1988-89 academic years are expected to be higher than the charges listed in this section.

Day Division students taking courses offered during the evening will still pay the Day Division tuition rate for the first 18 credits per semester. Evening Division students may take one course offered during the day at the Evening Division tuition rate.

Undergraduate Day Division 1987-88

Application Fee $25
Payable with student's application to the university.

Acceptance Fee $50
Payable by all new students (incoming freshmen, transfer and former students) upon notication of acceptance, not refundable.

International Students Fee $200

Tuition, 1987-88, Full-time Students	**Per Semester**	**Per Year**
Full-time students taking 12-18 credit hours.	$3,350	$6,700
Students taking fewer than 12 credit hours, tuition per credit hour, $223		
Students taking 19 or more credit hours, additional tuition for each credit hour over 18, $143		
Student Activity Fee	$ 60	$ 120
Total tuition and fees	**$3,410**	**$6,820**

Note: The student activity fee is distributed by the Day Student Government and covers the cost of student-supported services such as the newspaper and radio station and helps defray the expenses of clubs, organizations, social activities, etc.

Registration Late Fee $25

Late Payment Fees

Assessed for failure to complete payment of tuition, meal plan or residence charge by due date listed on academic calendar in this catalog. $35

Additional fee for failure to complete payment of tuition, meal plan or resident charges by the first day of classes. $15

Additional fee of 1-1/2 percent per month on the unpaid balance after the first day of classes.

Undergraduate Evening Division 1987-88

Application Fee
Payable with the student's application to the university, not refundable. $10

Tuition, 1987-88 $143
Evening students taking up to 11 credit hours, per credit hour.

Tuition Late Fee
Fifty percent of the tuition for an Evening Division student is due when registering, the other 50 percent due by the first day of class. After this, the student must pay 1-1/2 percent per month on the unpaid balance. $25

Tuition for Summer Session and Winter Intersession
All students, both day and evening, pay per credit hour for summer session and winter intersession courses. $143

Tuition, UNH in Southeastern Connecticut
Students at UNH in Southeastern Connecticut are part of the Evening Division and pay per credit hour. $143

Other Fees

Change of Registration Fee
Assessed for each course or section addition after the completion of registration. $5

Laboratory Fees
Payable each semester by students registering for courses requiring the laboratory fee as listed in the catalog. Non-refundable fees are announced in printed course schedules in advance of each semester.

Make-up Test
Assessed when a student is permitted to make up an announced test. $7

Make-up Examination
Assessed when a student is permitted to take an end-of-semester examination at a time other than the scheduled time, except for conflicts caused by the examination schedule. $10

Co-op Program
Students participating in the university's Cooperative Education program pay a continuing registration fee for semesters during which they work. $100

Crediting Exam
Assessed when a student is permitted to take crediting examination for a 3-credit course. $150

Auditing a Course
Students pay the same tuition and fees for auditing a course as they pay when the course is taken for credit.

Graduation
Assessed regardless of participation in exercises; no reduction will be made for non-attendance. For graduation in June, the fee and graduation petition are due no later than March 1 of the year of graduation; for January commencement, the fee and graduation petition are due before October 15 of the prior calendar year. Failure to meet the deadline date will result in a late charge of $50 in addition to the normal graduation fee, to be paid if there is sufficient time to process the graduation petition. If processing is not possible, graduation will be postponed to the next award date. $50

Graduation refiling/diploma replacement fee
This fee is paid to the university to refile for graduation if the student petitioned and failed to complete the requirements prior to the expected graduation date *or* the fee is paid to the university to replace a lost or damaged diploma. $35

Transcript of Academic Work
No charge for first copy; thereafter, per copy. $4

Payments

Tuition, fees and other charges are payable when due. Checks or money orders should be made payable to the University of New Haven. There is a penalty charge of $7 per check for all checks returned by the payer's bank.

The university withholds all issuance of grades, the awarding of diplomas, the issuance of transcripts, and the granting of honorable dismissal to any student whose account is in arrears.

As a convenience to those who desire to spread their payments out over the period of a semester, a deferred payment bank loan plan is available to full-time students and to part-time students carrying six or more semester hours or the equivalent. Details and forms for this plan are available at the Financial Aid Office.

Application for this plan must be made prior to the first day of each semester.

Adult Student Line of Credit

Under a special agreement with local Connecticut banks, the university, through its Evening Division, subsidizes interest rates for part-time students' tuition charges. Upon credit approval, a "revolving charge" account is established which spreads tuition costs over a 12-month period. The account may be used for all semesters and trimesters, including summers, accumulating charges up to a preset maximum established by the bank. There is no prepayment penalty, and the university contributes seven percent of the interest rate normally charged for similar credit accounts.

Tuition Refund Policy

After a formal withdrawal request is initiated by undergraduate day students at the Counseling Center or through the Evening Division Office for evening students, tuition is refunded or cancelled according to the following scale:

Date of Receipt of Withdrawal Request	Percentage Cancelled
1st week of semester	80%
2nd week of semester	60%
3rd week of semester	40%
4th week of semester	20%
After the 4th week	0%

A **prorated** refund, rather than a refund based on the above mentioned scale, may be made in situations involving clearly extenuating circumstances such as protracted illness of a student. All appeals for a prorated refund based on extenuating circumstances must be made in writing and include documentation of the extenuating circumstances. Appeals are to be sent to the Director of Counseling and Health Services; and prorated refunds will be determined by the Committee on Withdrawals. All requests for refunds should be initiated before the close of the semester of withdrawal. Any student under the age of 18 must have the written consent of a parent or guardian indicating to whom any refund, if applicable, is to be paid in order to withdraw from the university.

Summer Sessions and Intersession

In cases of withdrawal from a course or courses within the first week of each term, a refund of 50 percent of tuition is made. There is no refund of summer or intersession tuition after the first week.

The foregoing policy is intended to protect the university, since the university plans its expenses and bases its budget upon full collection of tuition and fees from all registered students, and assumes the obligation of supplying instruction and other services throughout the year.

Changes in Arrangements

The university reserves the right to make, at any time, whatever changes in admission requirements, fees, charges, tuition, instructors, regulations and academic programs it deems necessary prior to the start of any class, term, semester, trimester or session. The university reserves the right to divide, cancel or reschedule classes or programs if enrollment or other factors so require.

CLAPTON

FINANCIAL AID

James T. Anderson, director

The University of New Haven offers a comprehensive financial aid program, with students receiving assistance in the form of grants, scholarships, student loans and part-time employment. Funds are available from federal and state governments, private sponsors and from university resources. More than 65 percent of the university's full-time undergraduate students receive some form of financial assistance.

Most financial aid awards are based on an individual applicant's demonstration of need. Some funds are available on a merit-basis for students who have exceptional academic records or athletic ability. Need-based awards are available only to U.S. citizens or eligible non-citizens.

Financial aid award decisions are made after a careful consideration of a student's application for assistance. The Financial Aid Office attempts to consider all aspects of a student's financial circumstances in calculating need and attempts to meet the full need of aid applicants through a "package" of assistance, generally including a combination of grants, loans and employment.

Students interested in applying for financial aid are encouraged to do so as early as possible. Since undergraduates are admitted on a rolling basis, financial aid award decisions for **new students** are also made on a rolling basis up to the beginning of the academic year. Returning, upperclass students must submit application materials no later than April 1st for the fall semester and December 1st for the spring semester. All students are encouraged to apply for aid as early as possible to ensure full consideration for available funds.

The following application materials must be completed and submitted by each financial aid applicant.

- **University of New Haven Financial Aid Application.** The application form must be completed fully, front and back, and submitted to the Financial Aid Office. An application form is attached to the back of this catalog.
- **Financial Aid Form.** The principal needs analysis document used in determining need, the FAF, must be filled out and submitted to the College Scholarship Service in Princeton, New Jersey. Applicants must request that the FAF report be sent to the University of New Haven (our code is 3663). FAF forms may be obtained from the Financial Aid Office or any high school guidance office.
- **Tax Documentation.** Applicants must submit **signed** copies of both the student's and parent's complete federal income tax returns from the most recent tax year prior to the academic year. Tax forms must include all pertinent schedules. For those students or parents who did not and will not file a federal tax return for the year in question, a signed Non-Tax Filer's form must be submitted to the Financial Aid Office. The Non-Tax Filer form is available at the Financial Aid Office. Students filing as independents will not be required initially to submit their parent's tax documentation, although they may be requested to do so when their application is reviewed.
- **Financial Aid Transcript.** *Transfer students* must submit a financial aid transcript from all colleges or universities previously attended regardless of whether financial aid was received there. Forms are

available in the Financial Aid Office.

- **Citizenship Documentation.** Non-U.S. citizens who apply for need-based financial aid must submit immigration documentation to the Financial Aid Office. Citizenship forms are available in the Financial Aid Office.
- **Financial Aid Refund Policy.** When students are entitled to a refund as a result of withdrawal from courses, refunds will be based on the tuition refund policy as described elsewhere in the catalog. Financial aid awards will be adjusted on a pro-rated basis according to the same policy. Refunds will be made proportionately to all student aid programs from which the student received assistance.

Other forms and documents may be requested from applicants as their aid applications are reviewed. Upon completion of the review of an application, the Financial Aid Office will notify an applicant of his or her eligibility for financial aid.

Major Aid Programs

Pell Grants—The Pell Grant Program is a federal program providing grant assistance to low income students. Students apply for Pell Grants through the Financial Aid Form (FAF) or through a direct application form available in the Financial Aid Office. Grants for the 1988-89 academic year are expected to range from $250 to $2200 with the student's eligibility being determined by the U.S. Department of Education. Eligible students will receive a Student Aid Report (SAR) from the Pell Grant Processing Center which must be submitted to the Financial Aid Office. Students must be enrolled for a minimum of six credits to be eligible.

Supplemental Educational Opportunity Grant (SEOG)—SEOG is a federal program to provide grant assistance to exceptionally needy students. Students are selected by the university to receive SEOG Grants.

Perkins Loan Program (formerly National Direct Student Loan Program)—The Perkins Loan Program is a federal loan program providing up to $1500 per year to needy students. Repayment on Perkins loans begins six months after a recipient leaves school and carries a 5 percent rate of interest commencing with the repayment. Students are selected by the university to receive Perkins Loans.

Guaranteed Student Loans (GSL)—The GSL Program is a federal loan program which provides up to $2625 to freshmen and sophomore level students and $4000 to junior and senior level students. Students must demonstrate need to qualify. Participating banks, credit unions and savings and loans associations lend funds to students, with the loans guaranteed against default by the U.S. Government. Applications are available at banks throughout the United States and at college and university financial aid offices. The current interest rate for new borrowers is 8 percent commencing with the repayment period which begins six months after graduation or withdrawal from college. The interest rate for *new* borrowers will increase to 10% in the fourth year of payment.

Parent Loans for Undergraduate Students (PLUS)—The PLUS Loan Program is a federal program in which parents of dependent students are permitted to apply for up to $4000 per year. The interest rate as of July 1, 1987, was 10.27% with repayment beginning shortly after disbursement. The interest rate is variable. Application forms and information on this program are available at any participating bank.

Supplemental Loan for Students (SLS)—The SLS Program is similar to the PLUS Program except that borrowers in this program include independent students and graduate students. The terms otherwise are the same as those in the PLUS Program.

UNH/Citytrust Loan Program for Day Students—Credit-worthy students and/or parents may apply for a loan to cover educational expenses from $1,000 to $10,000. Citytrust will evaluate and process loan applications in accordance with its standard underwriting guidelines. If approved, the loan is to be repaid in 12 monthly installments beginning a month after disbursement and will carry an annual interest rate of 7 percent. For additional information and an application for the loan, contact the UNH Financial Aid Office.

UNH/Citytrust Loan Program for Evening Students—Credit-worthy students (or jointly with parent or spouse) may apply for a loan to cover educational expenses up to a maximum of $3,000 over a 12-month period. Applications should be submitted to the UNH Evening Division or Southeastern Connecticut offices. If approved, the loan is to be repaid in 12 monthly installments beginning a month after disbursement and will carry an annual interest of 8 percent.

College Work-Study Program (CWSP)—The College Work-Study Program is a federal financial aid program which provides employment opportunities for needy students.

Connecticut Independent College Student Grant Program—Funds provided by the Connecticut General Assembly are awarded to needy Connecticut residents attending the university. Individual grants range up to $5400 per year.

Connecticut Scholastic Achievement Grant Program—Connecticut students who have finished in the top one-third of their high school class or who have scored 1100 or greater on their combined Scholastic Achievement Test (SAT) scores may be eligible for the Connecticut Scholastic Achievement Grant. Students must obtain an application from their high school guidance office and send a report of their Financial Aid Form (FAF) to the Connecticut Scholastic Achievement Grant Program (CSS Code #0286).

Family Education Loan Program (FELP)—Sponsored by the Connecticut Higher Education Loan Authority, the FELP Program offers loans from $1000 to $15,000 per academic year to credit-worthy students and/or parents. The loan program is available to all students attending college in Connecticut and does not require state residency. The current interest rate is set at 10.98 percent with a 140-month repayment schedule. Applications can be obtained by phoning the Authority at 1-800-325-3357 (in Connecticut) and 1-203-522-0766 (out-of-state).

University Grants-In-Aid—University grants are made in all divisions on the basis of need.

University Excellence Awards—These are merit-based awards offered to five incoming freshmen. Awards are for $5000 per year and are renewable.

Presidential Scholarships—Merit-based awards to incoming freshmen and transfer students are made available to selected students each year. A faculty committee selects incoming students for the program based on academic merit, high school records and standardized test scores.

Athletic Grants-In-Aid—Athletic grants are provided to students for participation in sports. Selection for the awards is made by the athletic department based on students athletic ability. Awards can range up to a full tuition, room and board scholarship. Athletic grants are available in the following sports:

Men	Women
Football	Softball
Cross Country	Volleyball
Soccer	Basketball
Basketball	Tennis
Baseball	
Track and Field	

Miscellaneous State Scholarships—Students from selected states are eligible to apply for state scholarships which can be brought to Connecticut for attendance at the University of New Haven. States which permit scholarships to be taken out of state includes Delaware, Maine, Maryland, Massachusetts, New Hampshire, Pennsylvania, Rhode Island, Vermont and the District of Columbia.

Donor Scholarships—Many scholarship awards are available each year through the generosity of business firms, charitable organizations and friends of the university. Scholarship funds are awarded from annual gifts from sponsors and from income from the university's endowments.

The following scholarships are awarded at the discretion of the university and require no special application form—unless otherwise noted—other than the standard application for financial aid.

Alumni Association Scholarships—Merit-based awards are given to students in each of the university's divisions—day, evening and graduate.

Alumni Scholarships—Scholarships are available each year on a need basis for any son or daughter of an alumnus or alumna of the university.

Amity Charitable Trust Fund—An annual award is made from the income of this fund to a worthy, needy student. Preference is given to students from the greater New Haven area. The fund was made possible through the generosity of the Amity Club.

The Barn Sale Scholarship—A scholarship is available each year for a deserving, upperclass handicapped student. The award is made possible by an endowment established by the Barn Sale, Inc.

Carmel Benevento Memorial Scholarship—This award is made annually to a woman entering the university as a freshman. The award was established in memory of Carmel Benevento and is based on need and academic and creative ability.

Blue Cross/Blue Shield—Joseph F. Duplinsky Scholarship. Two one-half tuition awards are made annually to students majoring in management information systems in the School of Business. The awards are made possible by Blue Cross/Blue Shield of Connecticut, Inc., in honor of Mr. Duplinsky, a former president of the company and an alumnus of the university. Preference is given to upperclassmen who must be Connecticut residents.

Bozzuto Charity Sports Classic Scholarship—Income from this endowment provides for an annual award to a needy student.

Chesebrough-Ponds Engineering Scholarship—Five $2500 awards are available to engineering students with need. Preference is given to minority students. The scholarships are made possible through the generosity of the Chesebrough-Ponds Company.

Educational Trust Fund of the Connecticut Society of Certified Public Accountants—Junior or senior accounting majors with demonstrated need are selected by the CSCPA for annual awards.

Clarence Dunham Scholarship—A merit-based award is made each year to a deserving student majoring in civil engineering. Selection is made by the faculty of the civil engineering department.

Echlin Family Scholarships—Several annual awards of $2000 are made to needy business or engineering students. The awards are made possible through an endowment established through the generosity of John and Beryl Echlin.

Eder Brothers Scholarships—Annual awards are made to hotel/restaurant management students. The awards are made possible by Eder Brothers, Inc., of West Haven, Connecticut.

Enthone Scholarship—An annual award is made to a needy junior or senior majoring in chemistry or chemical engineering. The award is offered by the ASARCO-Enthone Corporation.

James Jacob Gerowin Memorial Scholarship—An annual award is made to a needy engineering student showing academic promise. Award is in memory of James Gerowin of the Class of 1985.

Greater New Haven Consumer Credit Association Scholarship—An annual award is made to a business major from the greater New Haven area. Preference is given to freshmen.

Paul Kane Memorial Scholarship—An award is available each year to an active scholar-athlete with preference to a Hamden, Connecticut, resident. The award is made in memory of Paul Kane, a university alumnus who was killed in the service of his country.

Nathanial Kaplan Memorial Scholarship—An award in memory of Nathanial Kaplan, a former English professor, is made each year to a student who has been enrolled in the School of Arts and Sciences for at least two years. Student must demonstrate need.

Martin Luther King, Jr. Memorial Scholarship—An annual award in honor of Dr. King is made to a deserving, needy student. Preference is given to minority students.

Ahmed Mandour Memorial Scholarship—An award is available each year to a student majoring in economics enrolled in the School of Professional Studies and Continuing Education. The award is made in memory of Dr. Mandour, a former dean at the university.

National Association of Accountants Scholarship—An award is made available by the NAA to a needy junior accounting major from the greater New Haven area.

Network of Executive Women Scholarship—An annual award is made by the Milford, Connecticut-based organization to a non-traditional woman student.

Virginia M. Parker Scholarship—An award is made each year from this endowed scholarship to a sophomore student.

Marvin K. Peterson Scholarship–CSB Award—An award is made possible from the income of this endowed scholarship which was established in honor of Mr. Peterson, a former president of the university. The endowment was established through the generosity of the Connecticut Savings Bank.

Marvin K. Peterson-Evening Student Council Scholarship—This scholarship was established by the Evening Student Council of the University of New Haven in 1969 to honor the past president, Marvin K. Peterson (1953-1973). The scholarship, awarded to undergraduate evening students, is entirely funded by the Evening Student Council.

The Executive Board of the Evening Student Council carefully screens each application, considering each student based on financial need, quality point ratio (a minimum 3.0 is required), length of time attending the university and other financial aid received by the student.

Eugene J. Rosazza Memorial Scholarship—An award is made each year from the income of this endowment, which was established in memory of Mr. Rosazza, an alumnus of the university.

Southern Connecticut Gas Company Scholarship—A scholarship is made available annually to a needy student from the company's service area in the greater New Haven and Bridgeport areas.

Southern New England Telephone Company Grant to Scholars—SNETCO offers two scholarships each year to needy students from Connecticut.

UNIVERSITY CORE CURRICULUM

The University of New Haven believes that all students studying for a bachelor's degree should develop a common set of skills; furthermore, they should be exposed to a commonality of intellectual experiences which are distinguishing traits of a university graduate. The university's goal is to prepare all graduates for the changing, complex lives they will lead, to focus on the quality of their lives, and to begin the development of the wisdom by which they will frame their lives. This can be done best through a university core curriculum.

The core curriculum encompasses a minimum of eleven courses, totaling 34 credits, grouped into the areas below.

Communication Skills

Clear Reasoning:
- Quantitative Reasoning
- Problem Solving and Synthetic Reasoning (Computers)
- Scientific Method

Dimensions of Our World:
- Laboratory Science
- Social Sciences
- History
- Literature *or* Philosophy
- Fine Arts *or* Music *or* Theater

Plus Depth of Knowledge in at Least One Field: The Major

University Core Curriculum

Credits

Communication Skills 6

The intent of this area is to develop student skills in reading, writing and communicating in the English language. Two courses are required, and should be taken in the freshman year:

E 105	Expository Writing
E 110	Composition & Literature

If a student places out of E105, then CO100 Human Communication or a technical writing course (E 200 or E 225) may be taken.

Clear Reasoning 9

Quantitative Skills

All students must be able to think abstractly and must possess a basic ability to do numerical computations and elementary algebra.

Choose from the following

M 109	Elementary College Algebra
M 127	Finite Mathematics

or demonstration of an equivalent level of skill. Students may satisfy this requirement by satisfactory performance on a placement test administered by the mathematics department.

Computers

Students should be able to use a computer to meet their needs. They should be able to operate the machinery, bring a program into execution, and use that program to accomplish some useful end.

Students may select one of the following options:
Option A - **one** course from the following:

CS 102	Intro to Programming/FORTRAN
CS 105	Intro to Programming/COBOL
CS 106	Intro to Programming/PASCAL
CS 107	Intro to Data Processing
CS 108	Intro to Programming/BASIC

Option B - One of the following **three-course sequences:**

I	M 127	Finite Mathematics
	M 228	Elementary Statistics
	SO 350	Survey Research
II	M 127	Finite Mathematics
	P 301	Statistics for Behavioral Sciences
	P 305	Experimental Methods in Psychology
III	M 127	Finite Mathematics
	P 301	Statistics for Behavioral Sciences
	SO 350	Survey Research

Scientific Methods

Students should understand the nature of scientific inquiry and study science from a variety of perspectives: as a human activity, as a social institution and as an instrument of acquiring and using knowledge. Courses available are:

ES 107	Intro to Engineering
HS 108	History of Science
HU 300	The Nature of Science
PL 240	Philosophy of Science and Technology

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Laboratory Science

Students should understand the methodology of a at least one basic science. One laboratory course satisfies the requirement:

BI 121	General & Human Biology with Lab I
BI 122	General & Human Biology with Lab II
BI 253	Biology for Science Majors with Lab I
BI 254	Biology for Science Majors with Lab II
CH 103	& 104 Introduction to General Chemistry and Lab
CH 107	& 108 Elementary Organic Chemistry and Lab
CH 115	& 117 General Chemistry I and Lab
CH 116	& 118 General Chemistry II and Lab
PH 100	Introductory Physics with laboratory
PH 103	& 105 General Physics I and Lab
PH 104	& 106 General Physics II and Lab
PH 150	Mechanics, Heat, and Waves with Laboratory

Social Sciences

Some breadth of understanding of our society is to be acquired by taking a basic course in each of two different social science departments. Acceptable choices are:

P 111	Introduction to Psychology
PS 121	American Government
PS 241	International Relations
PS 280	(SS: 494) Introduction to Comparative Governments
EC 133	Principles of Economics I
EC 134	Principles of Economics II
SO 113	Sociology
SO 221	Cultural Anthropology

History

Early Western civilizations are studied as a basis for understanding our own society:

HS 101	Foundations of the Western World

Literature or Philosophy

Students should acquire some depth of understanding of the human condition and of human endeavor. A sophomore-level course in literature or philosophy is to be selected from:

E 201	Literary Heritage I
E 202	Literary Heritage II
PL 201	Philosophical Methods
PL 215	The Nature of the Self
PL 222	Ethics

Fine Arts or Theater

Students should study the methodology, history, practice and content of one of the fine arts. Any one of the following is acceptable:

AT 101	Introduction to Studio Art I
AT 231	History of Art I
AT 232	History of Art II
AT 331	Contemporary Art
MU 111	Introduction to Music
MU 112	Introduction to World Music
MU 150	Introduction to Music Theory
MU 211	History of Rock
T 131	Introduction to Theatre
T 132	Theatrical Style
T 241	Early World Drama and Theatre
T 242	Modern World Drama and Theatre: Realism Through Present

The Major

Depth of knowledge in at least one field is crucial to a student's ability to work and live in the twentieth and twenty-first centuries. This is accomplished through choosing and following a major. The combination of a core curriculum, which has flexibility, logic, coherence, and relevance to the modern world, with the specialization of a major field of study represents the university's philosophy of an integrated collegiate education.

Majors are chosen from one of the university's five undergraduate schools: Arts and Sciences; Business; Engineering; Hotel, Restaurant and Tourism Administration; and Professional Studies.

SCHOOL OF ARTS AND SCIENCES

Joseph B. Chepaitis, Ph.D., dean

There is no more significant preparation for careers and lifetime personal development than a liberal education. Recent studies show that such an education prepares college graduates effectively for a career. These graduates are able to adapt to new environments, to think critically and conceptually, to integrate broad ranges of experience, to set goals and develop independence of thought, to seek leadership roles and to possess better overall interpersonal and administrative skills. These studies also reveal that many students educated in the arts and sciences ultimately attain responsible managerial positions because of the job training provided by a liberal education. A practical education, whether for a career or the job of life, is a liberal education.

The ideals of a liberal education are intellectual and imaginative growth, freedom of thought and inquiry and a sense of personal worth. The active pursuit of wisdom, the enrichment of the spirit and the development of each individual as a person offer the world its best hope for the future.

It is the aim of the School of Arts and Sciences to offer students the opportunity for a liberal education which will enrich the mind while it prepares them to pursue their interests and goals. Courses and programs have been designed to appeal to a wide range of interests and to secure the commitment of each student who is seriously engaged in the acquisition of an education.

Education is comprised of many elements, and not all education takes place in the classroom or even on the campus. New Haven is an exciting cultural center which offers libraries, natural history museums, art museums and exhibitions and workshops for dance and the creative arts. A constant procession of speakers and performing artists comes to the New Haven area. Long Wharf Theater is the home of an excellent regional company offering a varied fare of classics and new plays, and the Yale Repertory Theater is innovative and exciting. Programs of old and new films are offered on several college campuses in the area.

Speakers and performing artists are brought to the University of New Haven campus, and a series of concerts is organized by the world music program. The university's library offers comfortable surroundings for study and leisure reading. It has an excellent collection of books, journals, periodicals and phonograph records.

In the School of Arts and Sciences, students are encouraged to pursue as broad-based a program of study as possible.

The School of Arts and Sciences offers programs leading to the bachelor of arts degree, the bachelor of science degree, the associate in science, and a number of certificate programs.

Through the Graduate School, the School of Arts and Sciences offers programs leading to the master of arts degree, the master of science degree and senior professional certificates.

Bachelor of Arts

Art
Biology
Chemistry
Communication
Economics
English
  Writing Concentration
  Literature Concentration
Graphic Design
  Photography concentration
History
Interior Design
  Pre-architecture concentration
Mathematics
Music & Sound Recording
Physics
Political Science
Psychology
  Community/Clinical concentration
  Industrial/Organizational concentration
Sociology
  Social Service concentration
World Music

Bachelor of Science

Applied Mathematics
  Natural Science concentration
  Computer Science concentration
  Statistics concentration
Biology
Biomedical Computing
Biology—Premedical/Preveterinary/Predental
Environmental Science
Music & Sound Recording
Physics

Associate in Science

Biology
Environmental Science
General Studies
Graphic Design
  Photography concentration
Interior Design
Journalism

Certificate Program

Art
  Graphic Design
  Interior Design
  Photography
Journalism
Paralegal Studies
Public Policy

Master of Arts

Community Psychology
Humanities
Industrial/Organizational Psychology

Master of Science
Ernvironmental Science

Senior Professional Certificate
Applications of Psychology

Bachelor's Degrees

The bachelor's degree programs require at least 120 credit hours of study and take four years for full-time day students. Many other University of New Haven students take advantage of the full range of courses offered in the evening and complete their undergraduate degree on a schedule that complements their own careers.

Associate Degrees

The associate degree program is designed to encourage students to begin their college education even though they do not yet want to commit themselves to a full, four-year course of study. Sixty or more credit hours are required for the associate degree, and the credits earned may later apply toward the student's bachelor's degree.

The student wishing to pursue this option is encouraged to consult with the dean of the school or with the chairman in whose department the associate degree program is offered. Students who complete associate degree work may wish to have their credits applied toward further study leading to the bachelor of arts or bachelor of science.

Minors

It is highly recommended that students working toward a degree in one area of study give serious thought to organizing their elective courses so as to receive a minor in a second discipline. A minor usually consists of 18 credit hours devoted to the study of either a group of related subjects or subjects offered by one department.

Students are encouraged to minor in accounting, anthropology, art, biology, Black studies, chemistry, communication, criminal justice, economics, English, history, international business, journalism, management, marketing, mathematics, nutrition, philosophy, physics, political science, psychology, public administration, social welfare, sociology, theatre or world music. Students interested in studying for a minor should consult with the chairperson of the department offering the minor.

David Humphreys Honors Program

The David Humphreys Honors Program is a four-year honors program offered by the School of Arts and Sciences. The program is named after David Humphreys, a diplomat, manufacturer, soldier and an intellectual who was born in Derby, Connecticut, in 1752. Humphreys' life clearly illustrates that a love for the liberal arts is consistent with success in the practical world, thereby constituting a fitting model for students majoring in the arts and sciences at the University of New Haven.

All students admitted to the program are automatically nominated for University Excellence Awards and Presidential Scholarships. Students can enter directly from high school or can be admitted to the program prior to completing 50 credits of course work toward the undergraduate degree. Transfer students are also eligible.

The honors program is designed for highly motivated students who have demonstrated exceptional academic achievement. Evidence of such achievement includes secondary school and (when appropriate) previous collegiate grades, class rank, standardized test scores, participation in special programs and activities and recommendations from instructors.

Required Honors Courses

The honors curriculum consists of 10 courses, carrying a total of 30 credits. Eight of the courses (24 credits) are courses in the university core curriculum which have been designed specifically to meet the objectives of the honors program. The six-credit Senior Seminar and Honors Thesis round out the program.

E 105H	Honors English Seminar I*
E 110H	Honors English Seminar II
HS 101H	Honors History: Western Civilization
M 121H	Honors Mathematics: Algebraic Structures I
AT 331H	Honors Arts: Contemporary Arts
PL 215H	Honors Philosophy and Literature: Nature of the Self
PS 390H	Honors Social Science: Political Modernization
HU 300H	Honors Scientific Methods: The Nature of Science
Senior Seminar and Thesis I	
Senior Seminar and Thesis II	

* CO 100, E 220, or E 225 may also be taken by honors students in place of E 105H.

Non-Honors Students in Honors Courses

All University of New Haven students, regardless of school, who are not in the honors program may take honors courses with the approval of the Director of the Honors Program. Such students must have demonstrated exceptional academic ability to be admitted. Honors courses taken by non-honors students will be designated as honors on the student's transcript.

Certificate Programs

Students can take their first step toward an undergraduate degree by registering for one of the certificates offered by the School of Arts and Sciences in conjunction with the School of Professional Studies and Continuing Education.

Each certificate program is carefully designed as a concentrated introduction to a particular subject area and generally consists of courses totaling 15 to 18 credit hours.

Later, students may choose to apply the credits they have earned toward their undergraduate degree at the university.

Admission Criteria

An applicant for admission to the School of Arts and Sciences must be a graduate of an approved secondary school or the equivalent. While no set program of high school subjects is prescribed, an applicant must meet the standard of the university in respect to the high school average. Applicants must present 15 acceptable units of satisfactory work, including nine or more units of college preparatory subjects. Satisfactory scores on College Entrance Examination Board (S.A.T.) or American College Testing (A.C.T.) program tests are required.

University Core Curriculum

In addition to department requirements, students must fulfill all requirements of the core curriculum.

A.S., General Studies

The School of Arts and Sciences offers the A.S. in general studies to serve two different student populations. The first is the new or returning student who wishes a general liberal arts education for personal enrichment. The second type of student is the one who is undecided

about career objectives and wishes to defer the choice of a major field.

Nearly half of the 60 credit hours required for the degree are free electives. This flexibility permits the student to take courses in a number of different fields prior to choosing a major. By judicious choice of electives, it is possible to transfer into majors in any of the schools in the university.

Students planning to transfer to four-year programs in the School of Arts and Sciences should note additional core requirements in science and mathematics, English literature, fine arts and social science, as well as special requirements in particular major programs.

Required Courses

Students must complete 60 credit hours of courses to earn the associate degree with a general studies major, including the courses listed below:

E 105 Composition
E 110 Composition and Literature
HS 101 Foundations of the Western World

Plus 1 mathematics course (M109 or M 127 or higher)
1 scientific methods course (HU 300)
1 literature or philosophy course (E 201 or E 202; PL 205 or PL 206)
1 fine arts, or music, or theater course (AT 231; MU 111; T 131)
1 computer course
1 science course with lab
2 social science courses: Must be from two different departments (economics, political science, psychology, sociology)

Department of Biology & Environmental Science

Chairman: Charles L. Vigue, Ph.D.

Professors: Burton C. Staugaard, Ph.D., University of Connecticut; Henry E. Voegeli, Jr., Ph.D., University of Rhode Island; Charles L. Vigue, Ph.D., North Carolina State University

Practitioner-in-residence: Thomas McGrath, M.S., University of Connecticut; Dinwiddie C. Reams, Jr., D.Eng., Yale University; Karl E. Tolonen, Ph.D., Yale University

Biology provides one of the cornerstones of a liberal education by increasing the knowledge and appreciation of oneself and of other living organisms in the ecosphere. As a major, biology prepares the student for professional or graduate training or for technical positions in one of the health or life-science fields. The department is well equipped with apparatus ranging from canoes to study aquatic ecosystems to an electron microscope for the study of biological ultra structure.

Because of the close relationship to chemistry, physics, pyschology and sociology, biology provides an area for an academic minor concentration for students majoring in these and other disciplines such as business or engineering.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Honor Society

The University of New Haven has a chapter of Beta Beta Beta, the honor society in biology. Full membership requires an average of 3.0 in biological courses and 3.0 overall. Students majoring in biology with lower grades and those majoring in other areas may affiliate as associate members. The society promotes scholarship, research and intellectual experiences outside the classroom.

Basic Courses Required for Biology Majors

All students earning a bachelor's degree in biology must complete the university's core requirements, the course requirements for their particular biology program, and basic biology courses listed below:

BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
BI 303 Histology with Laboratory
BI 308 Cell Physiology with Laboratory
BI 310 Vertebrate Anatomy & Physiology with Laboratory

BI 311 Genetics
BI 461 Biochemistry I with Laboratory
BI 462 Biochemistry II with Laboratory
BI 591 Seminar
BI 592 Seminar
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II

B.A., Biology

Students earning a B.A. with a biology major must complete 124 credit hours. Courses include the basic biology courses listed earlier in this section, the core requirements of the university, and those additional courses listed below:

Required Courses

BI 330 General Ecology with Laboratory

3 credit hours biology/science elective
Choice of math courses M 115 Precalculus and M 117 Calculus *or* M 117 Calculus I and M 118 Calculus II *or* M 127 Finite Math and M 228 Elementary Statistics.

B.S., Biology

Students earning a B.S. with a major in biology must complete 123 credit hours. Courses include the basic biology courses listed earlier in this section, the core requirements of the university, and those additional courses listed below:

Required Courses

BI 304 Immunology with Laboratory
BI 305 Developmental Biology with Laboratory
BI 330 General Ecology with Laboratory

Choice of math courses M 115 Precalculus and M 117 Calculus *or* M 117 Calculus I and M 118 Calculus II *or* M 127 Finite Math and M 228 Elementary Statistics.

B.S., Biology/ Premedical/Predental/ Preveterinary

Students earning a B.S. with a major in biology in the premedical/predental/preveterinary medical program must complete 124 credit hours. Courses requirements include the basic courses listed earlier in this section, the core requirements of the university, and those additional courses listed below:

Required Courses

BI 304 Immunology with Laboratory
BI 305 Developmental Biology with Laboratory
CH 211 Quantitative Analysis with Laboratory
M 117 Calculus I
M 118 Calculus II

Students who complete the program will have met the basic entrance requirements of virtually every U.S. college of medicine, dentistry and veterinary medicine. Entrance into these colleges is highly competitive and completion of the program does not guarantee acceptance into a medical, dental or veterinary medical college.

An agreement between the University of New Haven and Ross University in Dominica allows up to fifteen qualified pre-medical/pre-veterinary students from UNH each year to complete simultaneously their senior year and first year of medical or veterinary school at Ross University's Schools of Medicine and Veterinary Medicine. To qualify, students must have a grade point average of at least 3.0; receive a favorable recommendation from the University of New Haven's Premedical Advisory Committee, and apply for admission to Ross University at least six months before entrance.

B.S., Biomedical Computing

The biomedical computing program prepares students for positions requiring an understanding of both the biological sciences and computer science. The program investigates the changes computers have made in analytical and diagnostic methods for the biological sciences and explains the integration of computing with the biological sciences.

Students earning a B.S. with a major in biomedical computing must complete 130 credit hours. The course must include the university's core requirements and these additional courses listed below:

BI 253 Biology for Science Majors with Laboratory I
BI 254 Biology for Science Majors with Laboratory II
BI 308 Cell Physiology with Laboratory
BI 310 Vertebrate Anatomy and Physiology with Laboratory
CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
CH 116 General Chemistry II
CH 118 General Chemistry II Laboratory
CH 107 Elementary Organic chemistry with Laboratory
CS 106 Introduction to Computers: PASCAL, CS 226 Advanced Pascal Programming and CS 230 Intensive FORTRAN *or* CS 102 Introduction to Computers: FORTRAN CS 224 Advanced FORTRAN Programming and CS 226 Advanced PASCAL Programming
CS 334 Assembler Language *or* EE 475 Microprocessors
EE 211 Principles of Electrical Engineering I
EE 212 Principles of Electrical Engineering II
IE 435 Simulations and Applications
M 117 Calculus I
M 118 Calculus II
M 371 Probability and Statistics
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Eletromagnetism and Optics with Laboratory

Plus 16 credit hours of biology electives
3 credit hours of an industrial engineering elective

A.S., Biology

The associate in science degree program in biology is essentially the first two years of the bachelor of arts program in biology. Many students, especially those enrolled in the Evening Division, may prefer to receive the associate degree after the completion of the first two years of study.

The A.S. degree program may be modified to provide the necessary requirements for entrance into certain types of professional degree programs, such as nursing or pharmacy. Students should meet with their adviser for further information concerning the A.S. in biology.

Required Courses

All students must complete 60 to 64 credit hours of courses to earn the associate in science degree with a biology major, including the courses listed below:

BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
BI 311 Genetics
BI 330 General Ecology with Laboratory
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II

Plus 6 credit hours of biology electives
Choice of math courses M 115 Precalculus and M 117 Calculus I *or* M 117 Calculus I and M 118 Calculus II *or* M 127 Finite Math and M 128 Elementary Statistics.

Minor in Biology

To minor in biology, students must complete 21 credit hours, including those courses listed below. In some instances, an upper-level biology course can be substituted for general biology.

BI 121 General and Human Biology I with Laboratory
BI 122 General and Human Biology II with Laboratory
or
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory

Plus 4 upper-level biology electives
3 credit hours of biology elective

A concentration in biology offers greater exposure to the study of biology than a minor, yet still allows the student to complete a major in another field. A total of 28 credit hours is required. The subjects listed under the minor must be completed plus two other upper-level courses.

Minor in Bioengineering

No rigid group of courses constitutes a minor in bioengineering. Students wishing to follow such a program should major in one aspect of engineering and take a minor (21 credit hours) or a concentration (28 credit hours) in biology; or biology major program may be combined with a minor or concentration in engineering. Consultation with the particular engineering and biology department chairman should be made before starting the program.

Minor in Nutrition

Students who wish to minor in nutrition must take the following courses:

BI 115 Nutrition and Dietetics
BI 116 Fundamentals of Food Service
BI 315 Nutrition and Disease

BI 121 General and Human Biology I
BI 122 General and Human Biology II
or
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory

Plus 1 upper-level nutrition course.

Environmental Science

Environmentalists find employment in business, as well as in municipal, state and federal governmental organizations. Employment opportunities can be found in testing and control of pollutants, equipment sales, administration, laboratory research, consulting and as industrial environmental safety experts for those majoring in this field.

Usually specialized training is necessary if one eventually wishes an administrative job at a high salary level. These programs are designed to enable students to enter a graduate or specialty school to continue their eduction. Examples of advanced study would be a graduate program of environmental science or engineering, a school of forestry, a program in urban ecology or a school of public health.

The bachelor of science degree in environmental science offers concentrations in the following areas: air-water control and management, environmental health and community ecology.

A master of science program in environmental science is offered by the Graduate School. More may be learned about this program from the Graduate School catalog.

B.S., Environmental Science

Required Courses

All students earning a bachelor's degree in environmental studies msut complete the core requirements of the university and the courses listed below:

BI 135 Earth Science
BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
BI 330 General Ecology with Laboratory
BI 502 Fresh Water and Marine Ecology with Laboratory
BI 510 General Environmental Health
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I

CH 118 General Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Laboratory I
PH 106 General Physics Laboratory II
SC 507 Characterization and Treatment of Wastes with Laboratory
SC 513 Environmental Pollutants with Laboratory

Plus 6 to 8 credit hours of biology, science or chemistry electives
M 115 Precalculus and M 117 Calculus I *or* M 117 Calculus I and M 118 Calculus II
CH 201 Organic Chemistry I, CH 203 Organic Chemistry I Laboratory, CH 202 Organic Chemistry II and CH 204 Organic Chemistry II Laboratory
CH 107 Organic Chemistry and CH 108 Elementary Organic Chemistry Laboratory

A.S., Environmental Science

The associate's program is designed to lead directly into the bachelor's program if students wish to continue their studies. Evening students often prefer to obtain an associate's degree on their way to completing the requirements for the bachelor of science degree. The associate in science program provides a terminal degree for those who intend to work or already work in the environmental field, but who are trained in engineering, chemistry or business and lack the necessary background and training in biology and ecology required today in the practice of environmental control and management.

Required Courses

Students earning an associate degree in environmental science are required to complete 68 credit hours, which include first and second year courses from the university core requirements and the courses listed below:

BI 253 Biology for Science Majors I with Laboratory
BI 254 Biology for Science Majors II with Laboratory
BI 301 Microbiology with Laboratory
BI 330 General Ecology with Laboratory
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
SC 135 Earth Science

Plus 3 credit hours of biology elective
Choice of math courses M 115-117; M 117-118; *or* M 115-116

Minor in Environmental Science

The minor in environmental science provides a useful background for students majoring in many other areas of study if they have concern for the environment. For example, students majoring in political science might well combine their program with a minor in environmental science. Another useful combination is an environmental science minor and a major in business administration or engineering.

For specific information concerning a minor in environmental science, please consult with the department chairman.

Department of Chemistry and Chemical Engineering

Chairman: George L. Wheeler, Ph.D.

Professors: Peter J. Desio, Ph.D., University of New Hampshire; George L. Wheeler, Ph.D., University of Maryland, (Jacob Finley Buckman Professor of Chemistry and Chemical Engineering)

Associate Professor: Michael J. Saliby, Ph.D., State University of New York at Binghamton

Assistant Professor: Michael A. Collura, Ph.D., Lehigh University

This program is designed to provide a traditional liberal arts background with the basic requirements of a chemistry major.

B.A., Chemistry

Required Courses

All students in the B.A. in chemistry program must complete 126 credit hours. These courses must include the university core requirements and the courses listed below:

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
CH 331 Physical Chemistry I
CH 332 Physical Chemistry II
CH 333 Physical Chemistry I Laboratory
CH 334 Physical Chemistry II Laboratory
CH 411 Chemical Literature
CH 412 Seminar
CH 501 Advanced Organic Chemistry
CH 521 Advanced Inorganic Chemistry
M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Plus 18 credit hours of electives

B.S., A.S., Chemistry

The B.S. and A.S. programs in chemistry appear in this catalog under the School of Engineering.

Department of Communication

Chairman: Steven A. Raucher, Ph.D.

Professor: M.L. McLaughlin, Ph.D., University of Wisconsin

Associate Professors: Jean-Richard Bodon, Ph.D., Florida State University; Steven A. Raucher, Ph.D., Wayne State University

Assistant Professor: Donald C. Smith, Ph.D., University of Massachusetts, Amherst

The communication program at the university allow each student to develop interpersonal and mass communication skills and awareness through a sequence of course offerings.

Complete information about the bachelor of science degree program in communication is listed under the School of Business elsewhere in this catalog. Also included are course listings and information concerning communication as a minor field of study.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Communication

The University of New Haven offers a B.A. and a B.S. in communication.

The bachelor of arts degree program carries a strong journalism and public relations concentration. In addition, interpersonal communication theory is emphasized, giving the student a broad based background in all the elements of the communication field.

Required Courses

All students in the B.A. in communication program must complete 121 credit hours. These courses must include the university core requirements and 60 credit hours of communication and journalism courses.

B.S., Communication

The university also offers a B.S. in communication through the School of Business.

A.S., Journalism

The School of Arts and Sciences offers journalism as an associate in science degree major.

A curriculum built around a minor in journalism and a bachelor's degree major such as communication, English, history, political science, social welfare or environmental studies provides an excellent undergraduate education for a potential journalist.

Internships—work on local newspapers for academic credit—are available for qualified students.

Communication Certificate Programs

Coordinator: Steven A. Raucher, Ph.D.

The communication department offers certificates in journalism and mass communication. Students may choose to take these courses on a credit or non-credit basis. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Journalism Certificate

A program designed to provide basic journalism skills in both print and broadcasting media. This certificate program may supplement students' experience, or prepare them for other areas in their current field of work. All students are required to take 15 credit hours, including the courses listed below:

Required Courses

J 101 Journalism I
J 201 News Writing and Reporting
CO 309 Public Relations Writing

Plus two courses from among the following:

CO 302 Social Impact of Media
CO 307 Writing for Television, Radio and Film
CO 308 Broadcast Journalism
J 202 Advanced News Writing and Reporting
J 311 Copy Desk
J 351 Journalistic Performance
J 367 Interpretive Editorial Writing

Mass Communication Certificate

For information on the mass communication certificate, see the School of Business section of the catalog.

Department of Economics

Chairman: John Teluk, MA

Professors: Phillip Kaplan, Ph.D., The Johns Hopkins University; Joseph A. Parker, Ph.D., University of Oklahoma; Alan Plotnick, Ph.D., University of Pennsylvania; Franklin B. Sherwood, Ph.D., University of Illinois; John J. Teluk, M.A., Free University of Munich

Associate Professor: Ward Theilman, Ph.D., University of Illinois

Assistant Professors: Mary Martha Woodruff, M.A., Murray State University, M.S., University of New Haven; Steven J. Shapiro, M.A., Georgetown University

B.A., Economics

Economics courses provide a basis for an understanding of economic structures, a wide range of domestic and international issues and trends in the life of modern societies. They offer training in analysis of economic problems as an aid to the evaluation of economic policies.

Introductory courses are designed to provide the foundation of economic knowledge which every citizen in a modern complex society should have in order to understand the decisions of individual economic units and the operation of a national economy as a whole. This program is designed for students planning graduate studies.

Required Courses

All students in the B.A. in economics program must complete 121 credit hours. These courses must include the university core requirements and 30 credit hours in economics, including the courses listed below:

EC 100 Economic History of U.S.
EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
EC 342 International Economics
EC 442 Economic Thought

Plus 9 credit hours of an elective offered by the economics department

B.S., Business Economics

The University of New Haven also offers a B.S. in business economics. Please see the School of Business section of this catalog for more information about the bachelor of science program.

Minor in Economics

A total of 18 credit hours of work in economics is required for the minor in economics.

Recommended Courses

EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 312 Contemporary Economic Problems

Plus 9 credits of economics electives to be chosen from:

EC 311 Government Regulation of Business
EC 314 Public Finance and Budgeting
EC 336 Money and Banking
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
EC 345 Comparative Economic Systems
EC 350 Economics of Labor Relations
EC 440 Economic Development

Department of English

Chairman: Paul Marx, Ph.D.

Director of Freshman English: Donald M. Smith, A.M.

Professors: Srilekha Bell, Ph.D., University of Wisconsin; Paul Marx, Ph.D., New York University; Nancyanne Rabianski, Ph.D., State University of New York at Buffalo; Douglas Robillard, Ph.D., Wayne State University; David E.E. Sloane, Ph.D., Duke University

Associate Professor: Bruce A. French, Ph.D., New York University

Assistant Professor: Jeffrey Greene, Ph.D., University of Houston; Shakuntala Jayaswal, Ph.D., University of Wisconsin-Madison; Donald M. Smith, A.M., Columbia University

Practitioner-in-Residence: Richard Farrell, M.A., University of Virginia

The study of literature is at the heart of a liberal education. English and American literature taken together comprise noble monuments to man's intellect and creativity. In addition to its generally broadening effect, the study of literature will help the student to think critically and write and speak more effectively.

A major in English is looked upon very favorably by admissions officers of law, medical and dental schools. It is also good preparation for graduate work in such fields as business, education, urban planning, social work and public health. Employers in many areas of business, industry and government look favorably upon the college graduate who has both breadth of knowledge and the ability to communicate.

A major in English may be taken with a concentration in either literature or writing; the two concentrations complement each other. The literature concentration stresses the development of critical appreciation of the great works in the English language; the writing concentration stresses the growth of the student's own skill in language use. Some specific areas in which this skill has immediate, practical worth are journalism, advertising, public relations, sales training or promotion. Many companies hire writers and editors for company periodicals and reports, equipment handbooks and service manuals. Publishing houses provide employment, of many kinds and on many levels, for persons skilled in writing. For writers of proven ability, there are numerous opportunities to free-lance for trade journals, newspapers, magazines and other publications.

Foreign Language Study

While study of a foreign language is not required, it is strongly recommended that the student who majors in English know at least one foreign language. Knowledge of a foreign language makes one more sensitive to the use and meaning of words in one's own language. Furthermore, knowledge of a foreign language widens one's perspective and deepens one's understanding through the insights gained into another culture. Students who are considering graduate study certainly should become competent in at least one foreign language.

The English Club

The club is open to anyone associated with the university. Its aims are to encourage a greater love of good writing, to provide informal and diversified encounters with professional writers and to further the literary arts on campus. In addition to sponsoring films on writers and group excursions to plays, the English Club publishes the university's student literary magazine, *The Noiseless Spider*.

Transfer Credit for Writing Courses

The English department automatically will award credit for freshman writing courses taken at an accredited American college or university if the courses are essentially the same as E 105 or E 110 and if the student received at least a "C." If the courses were taken at a foreign college, the student will have to demonstrate his or her proficiency in writing before credit will be awarded. In the latter case, the student should make an appointment with the secretary of the English department for the writing of a one-hour composition.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

The English Major

Thirty credit hours in English beyond the freshman level, with the restrictions indicated below, must be taken for a major in English. All English majors must take the following courses:

E 211 Early British Writers
E 212 Modern British Writers
E 213 Early American Writers
E 214 Modern American Writers

B.A. English (Literature Concentration)

For the literature concentration, the student must take any six additional literature courses.

B.A., English (Writing Concentration)

For the writing concentration, the student must take the following writing courses:

E 220 Writing for Business and Industry
E 225 Technical Writing and Presentation
E 250 Expository Writing
E 261 The Essay
E 267 Creative Writing I
E 268 Creative Writing II
E 480 Internship (may be substituted for one of the writing courses)

Minor in Writing

A total of 18 credit hours is required for the minor in writing.

Required Courses

12 credit hours of writing courses.
6 credit hours of literature courses.

Minor in Literature

A total of 18 credit hours in literature courses is required for the minor in literature.

Department of History

Chairman: Edmund N. Todd, Ph.D.

Professor: Joseph B. Chepaitis, Ph.D., Georgetown University; Robert Glen, Ph.D., University of California, Berkeley

Assistant Professor: Edmund N. Todd, III, Ph.D., University of Pennsylvania

History provides a framework for a liberal education. The study of human experience—failures as well as achievements—is the core of historical study. It gives insight into related disciplines in the humanities and social sciences and broadens the perspective of students in professional fields of business and engineering, revealing the complexity and interrelatedness of human experience.

History is also excellent preparation for a variety of careers in business, government, law, journalism, foreign service and many other areas. Because of the great variety of professional programs at the University of New Haven, the student interested in history can combine this interest with highly technical professional training.

The department strives to meet its objectives by teaching not only content but critical and writing skills through reading, class presentation and discussion, research and writing. Historical methodology is stressed in all advanced courses and students take the history seminar in their senior year to sharpen their critical and analytical skills.

Phi Alpha Theta

The University of New Haven has a chapter of the International Honor Society in History, Phi Alpha Theta, which is open to those students who have had 12 hours of history or more and have maintained an average of better than 3.0 in history courses and better than 2.90 overall. The university chapter of Phi Alpha Theta provides the students and faculty with a social and intellectual experience beyond classroom work, offering films, speakers and roundtable discussions. Students not eligible for membership in the society are welcome to participate in all of the chapter's activities.

B.A., History

All students in the B.A. in history program must complete 120 credit hours. These courses must include the university core requirements and 36 credit hours of history courses, including those listed below. The balance of the program can be arranged in consultation with an adviser.

The department offers specific area studies that include American studies, European studies and economic history. A student who wishes to pursue one of these areas should consult with an adviser for specific requirements.

Required Courses

HS 101 Foundations of the Western World
HS 102 The Western World in Modern Times
HS 491 Senior Seminar

HS 211 United States History to 1865 *and*
HS 212 United States History from 1865
or
HS 110 American History from 1607 *and*
Any other United States history course excluding HS 211 *and* HS 212

Plus 1 upper-division history elective
1 upper-division course in both European and American history

Minor in History

A total of 18 credit hours in history is required for a minor in history. These courses must include two of those listed below and may include any other combination of four courses in history that supports the student's interests and needs.

Required Courses

HS 101 Foundations of the Western World *and*
HS 102 The Western World in Modern Times
or
HS 105 Foundations of Economic History *and*
HS 106 Modern Economic History

Department of Visual and Performing Arts and Philosophy

Chairman: Michael G. Kaloyanides, Ph.D.

Professors: Ralf E. Carriuolo, Ph.D., Wesleyan University; Michael G. Kaloyanides, Ph.D., Wesleyan University; Elizabeth Moffitt, M.A., Hunter College, City University of New York

Associate Professor: Joel H. Marks, Ph.D., University of Connecticut

Assistant Professors: Edward J. Maffeo, Ph.D., New York University; Liisa Lindholm, M.F.A., Yale University

Instructor: Albert G. Celotto, M.M., Indiana University

Director of Theatre: Lila Wolff-Wilkinson, M.A., Hofstra University

Practitioners-in-Residence: Sharon Carter Matthews, M.Arch., Yale University; Henry E. Rosenberg, Ph.D., Clark University

Fine and Applied Arts

Coordinator: Elizabeth Moffitt, B.F.A., M.A.

Study of the visual arts provides an opportunity for self-realization and gives the individual a perception of his relationship to society. Foundation courses in the basics of two- and three-dimensional design, color and drawing, plus work in such major disciplines as painting and sculpture, provide the student with the necessary vocabulary for effective visual communication.

Knowledge of the development of art throughout man's cultural evolution from the cave era to present day, is provided through studies in art history and the contemporary art scene. Thus equipped with a working vocabulary of visual form and a sense of art history, the student progresses toward the goal of making a mature visual statement in his or her chosen field.

University of New Haven art programs provide preparation for graduate study or career opportunities in the fields of fine arts, graphic design, interior design, architecture and photography.

Students in all B.A. art programs listed below must complete at least 120 credit hours. These courses must include the core requirements for the university and the required courses as listed for each program.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Art

This program is designed to assist the student in discovering his or her potential for creative expression in the plastic arts and the development of a personal idiom in the disciplines of his or her own choosing including painting, sculpture, drawing, printmaking, etc. Acquisition of an effective visual vocabulary is promoted by foundation courses in two- and three-dimensional design, color and drawing. Art historical studies provide perspective on the art forms of the past.

The program prepares the student for graduate study in art as well as for career opportunities in a broad spectrum of art and art-related fields.

Required Courses

AT 101 Introduction to Studio Art I
AT 102 Introduction to Studio Art II
AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 201 Painting I
AT 202 Painting II
AT 209 Photography I
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 231 Art History I
AT 232 Art History II
AT 304 Sculpture I
AT 305 Sculpture II

AT 315 Printmaking
AT 302 Figure Drawing
AT 401 Studio Seminar I
AT 402 Studio Seminar II
Plus Art history elective

B.A., Graphic Design

Coordinator: Liisa Lindholm, M.F.A., Yale University

Graphic design is the creation of visual material using drawing, type and photographic techniques in order to communicate information. While often in the form of printed material such as books, brochures, posters and signs, graphic design also has applications in video and computer graphics.

The programs in graphic design train students for professional careers in this challenging field as well as preparing them for graduate study in graphic design. The graphic design programs emphasize the development of drawing proficiency, innovative approaches to design and typographical skills accompanied by a fundamental understanding of the lastest graphic communication technology.

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 122 Graphic Design Production
AT 201 Painting
AT 203 Graphic Design I
AT 204 Graphic Design II
AT 209 Photography I
AT 211 Basic Design (two-dimensional)
AT 212 Basic Design (three-dimensional)
AT 213 Color
AT 221 Typography I
AT 222 Typography II
AT 231 History of Art
AT 232 History of Art II *or* art history elective
AT 309 Photo Design
AT 315 Printmaking
AT 322 Illustration
AT 401 Studio Seminar I (in Graphic Design)
AT 402 Studio Seminar II (in Graphic Design)
AT 599 Independent Senior Project
MK 307 Advertising and Promotion

B.A., Graphic Design (Photography Concentration)

Practitioner-in-Residence: Henry Rosenberg, Ph.D.

The photography concentration under the graphic design program equips the student with a strong interest in photography with the necessary technical training to compete successfully as a professional in the fields of commercial and industrial photography, graphic design, etc. At the same time, the student's creative powers are developed through basic foundation art courses permitting an approach to both photography and graphic design as art forms.

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 122 Graphic Design Production

AT 201 Painting I
AT 203 Graphic Design I
AT 209 Photography I
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 221 Typography I
AT 231 History of Art I
AT 232 History of Art II
AT 309 Photo Design
AT 315 Printmaking
AT 401 Studio Seminar I
AT 402 Studio Seminar II
AT 599 Independent Study
MK 307 Advertising and Promotion

Photography Concentration

AT 210 Photography II
AT 225 Photographic Methods
AT 310 Photographic Lighting
AT 311 Color Photography
AT 599 Independent Study

B.A., Interior Design

Practitioner-in-Residence: Sharon Carter Matthews, M.Arch.

Studies in the interior design programs are organized to focus on the technology of a built environment, programming and three-dimensional composition. Students explore the relationship between interior designers and their clients, the interaction between designers and architects and methods of communication between designers and fabricators. In addition to interior design problems, students are given the opportunity to develop their studio art skills and their presentation techniques. Core course work includes architectural drawing, building construction, color theory, history of interior design and textile design.

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 201 Painting I
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 216 Architectural Drafting
AT 231 History of Art I
AT 232 History of Art II *or* art history elective
AT 233 History of Architecture
AT 302 Figure Drawing
AT 304 Sculpture I *or* AT 305 Sculpture II
AT 317 Interior Design
AT 322 Illustration
AT 401 Studio Seminar I (in Interior Design)
AT 402 Studio Seminar II (in Interior Design)

Recommended Electives

AT 203 Graphic Design I
AT 309 Photographic Design

Plus 1 art history elective.

A.S., Graphic Design

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 209 Photography I
AT 211 Basic Design I (two-dimensional)
AT 212 Basic Design II (three-dimensional)
AT 213 Color
AT 122 Graphic Design Production
AT 221 Typography I
AT 222 Typography II
AT 309 Photo Design

A.S., Graphic Design (Photography Concentration)

The A.S. photography concentration requires all the courses listed below:

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 122 Graphic Design Production
AT 203 Graphic Design I
AT 209 Photography I
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 221 Typography I
AT 309 Photo Design

Photography Concentration

AT 210 Photography II
AT 225 Photographic Methods
AT 310 Photographic Lighting
AT 311 Color Photography

B.A., Interior Design (Pre-Architecture Concentration)

Practitioner-in-Residence: Sharon Carter Matthews, M.Arch.

The pre-architecture concentration provides a thorough preparation for students planning to enter a professional degree program at the graduate school level. It also provides architecturally oriented training for those who might wish to seek employment in this and related areas such as city planning or landscape design. Liberal arts, technological studies and studio arts are carefully integrated into a balanced curriculum. Students gain insight into the relationship between architects and clients, investigate the nature of building and develop skills in presentation methods. Course work includes the history of architecture, architectural drawing, building construction, appropriate civil engineering studies and studio art courses in color and design.

Required Courses

AT 105 Basic Drawing I
AT 106 Basic Drawing II
AT 201 Painting I
AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 216 Architectural Drawing
AT 231 History of Art I
AT 232 History of Art II

AT 253 History of Architecture and Interior Design
AT 302 Figure Drawing
AT 304 Sculpture I
AT 317 Interior Design
AT 322 Illustration
AT 531 Contemporary Art
AT 401 Studio Seminar I
AT 402 Studio Seminar II
CE 302 Building Construction
CE 403 City Planning
M 115 Pre-Calculus
M 117 Calculus
PH 103 General Physics I
PH 105 General Physics Lab I

A.S., Interior Design

Required Courses

AT 211 Basic Design I
AT 212 Basic Design II
AT 213 Color
AT 216 Architectural Drawing
AT 231 History of Art I
AT 232 History of Art II *or* art history elective
AT 233 History of Architecture
AT 317 Interior Design
AT 322 Illustration
AT 304 Sculpture I *or* AT 305 Sculpture II
AT 402 Studio Seminar II (in Interior Design)

Minor in Art

A total of 18 credit hours of work in art is required for the minor in art. Students may take the courses listed below and any other combination of courses that fills their needs and interests.

Recommended Courses

AT 105 Basic Drawing I
AT 211 Basic Design I *or* AT 212 Basic Design II
AT 231 History of Art I
AT 232 History of Art II
AT 213 Color
AT 201 Painting I
AT 304 Sculpture I *or* AT 305 Sculpture II

Art Certificate Programs

Coordinator: Elizabeth Moffitt, M.A.

The art department offers certificates in graphic design, interior design and photography. Students must complete 15 to 18 credit hours of required courses to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Graphic Design Certificate

This is a certificate to prepare persons already in industry who wish to update their commercial art skills or for persons who wish experience in layout, design and the principles of effective design communication. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

AT 105 Basic Drawing I
AT 122 Graphic Design Production
AT 211 Basic Design I
AT 221 Typography I
AT 222 Typography II

Interior Design Certificate

A program developed for individuals seeking a professional knowledge of design and decorating skills applicable to both home and office decoration. All students are required to take 15 credit hours, including five of the seven courses listed below:

Required Courses

AT 105 Basic Drawing I
AT 211 Basic Design I
AT 216 Architectural Drawing
AT 233 History of Architecture
AT 312 Color
AT 317 Interior Design
CE 302 Building Construction

Photography Certificate

A program in the basic design principles and techniques which govern photography. Designed for beginners, for people who want to apply photography to their present jobs, and for people who want to improve their present photography skills.

This certificate also offers a foundation in photography for pleasure and leisure activities and for an aesthetic appreciation or photography as well. Students are required to take 15 credit hours, including the following courses:

Required Courses

AT 209 Photography I
AT 210 Photography II
AT 211 Basic Design I
AT 225 Photographic Methods
AT 309 Photographic Design

Theatre Arts

Director: Lila Wolff-Wilkinson, M.A.

Theatre courses may be used to satisfy the arts core requirements. Refer to the latest class schedule bulletin to determine the specific courses permitted.

Productions

The university community may take part in all department productions. Volunteers may act, help with lighting, set and costume design, set construction, publicity and stage management. Participants need not be enrolled in theatre classes.

Minor in Theatre Arts

Students may complete a minor in theatre arts by taking 18 credit hours in the theatre program. Three major productions are mounted each year by the department with opportunities for students in performance, directing and backstage work.

Required Courses

T 131 Introduction to the Theatre
T 132 Theatrical Style
T 241 Early World Drama and Theatre
T 242 Modern World Drama and Theatre

Plus 6 additional credit hours in theatre arts, choose from: T 341 Acting, T 342 Directing, T 491 Production Practicum I, T 492 Production Practicum II, T 599 Independent Study

Music

Coordinator: Michael G. Kaloyanides, Ph.D.

Music courses may be used to satisfy the fine arts core requirements.

B.A., World Music

The program in world music is unique. Music is studied as a world-wide phenomenon, not simply defined in the Western European art tradition. The student is encouraged to view music as a creation of all cultures and civilizations on both the folk and art levels, including our own urban and ethnic subcultures. Exposure to various music should lead the student to specialization in a particular area as an upperclassman.

Since music is a performing art, the student is expected to reach a satisfactory level of proficiency in either a traditional western instrument or one central to the particular culture in which he chooses to specialize.

A degree in world music qualifies students for professions as performers, composers, music publishers, critics and journalists, teachers, curators and librarians. Combining music with other fields, graduates may enter the fields of concert and ensemble management and sound engineering areas. There are, of course, countless performance opportunities for instrumentalists, vocalists and composers. Vocations such as music publishing, recording sales and promotions, and music criticism and journalism are also available to graduates with a degree in music. Students may also pursue careers in music education, not only as teachers in schools and conservatories but also as curators and librarians.

All students majoring in the B.A. in world music program must complete 120 credit hours.

Although the program contains no language requirements, students are urged to acquaint themselves with the language of their area of concentration.

Required Courses

These courses must include the core requirements for the university and 36 credit hours of world music including 21 credit hours from among the following courses listed below:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 116 Performance (at least 3 credit hours must be earned)
MU 150 Introduction to Music Theory
MU 151 Introduction to Music Theory
MU 198 Introduction to American Music
MU 199 Introduction to American Music
MU 201 Analysis and History of European Art Music
MU 202 Analysis and History of European Art Music
MU 250 Theory and Composition
MU 251 Theory and Composition

Plus 15 credit hours of upper-level courses (MU 299 and above) including MU 416 Advanced Performance

B.A., Music and Sound Recording

The bachelor of arts in music and sound recording is a unique four-year degree program. Its development is based on the philosophy that musicians should have a working knowledge of the media through which their art is most often heard and that sound recordists should have a working knowledge of the art form they are recording. Thus, it is designed to instruct students in three interrelated areas: 1) music history, theory and aesthetics; 2) musicianship; and 3) sound recording methodology and technique. Course work includes 38 credits in arts and sciences, 36 credits in music, 15 credits in recording and 33 credits in restricted and free electives for a total of 122.

Required Courses

These courses must include university core requirements and the following courses listed below:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 150 Music Theory I
MU 151 Music Theory II
MU 116 Performance (two semesters)
MU 201 Analysis and History of European Art Music
MU 202 Analysis and History of European Art Music
MU 175 Musicianship I
MU 176 Musicianship II
MU 211 History of Rock
MU 221 Film Music
MU 301 Recording Fundamentals
MU 311 Multitrack Recording I
MU 312 Multitrack Recording II
MU 401 Recording Seminar/Project I
MU 402 Recording Seminar/Project II
PH 103 General Physics I
PH 104 General Physics II
PH 105 General Physics Lab I
PH 106 General Physics Lab II

B.S., Music and Sound Recording

The bachelor of science in music and sound recording is similar to the bachelor of arts program in its philosophy and design but provides a stronger background in the science and technology of recording through classes in calculus, physics and electrical engineering. Course work includes 43 credits in arts and sciences, 36 credits in music, 15 credits in recording, six credits in electrical engineering and 24 credits in restricted and free electives for a total of 124 credits.

Required Courses

These courses must include university core requirements and the following courses listed below:

MU 111 Introduction to Music
MU 112 Introduction to World Music
MU 116 Performance (2 semesters)
MU 150 Music Theory I
MU 151 Music Theory II
MU 175 Musicianship I
MU 176 Musicianship II
MU 201 Analysis and History of European Art Music
MU 202 Analysis and History of European Art Music
MU 211 History of Rock
MU 221 Film Music
MU 301 Recording Fundamentals
MU 311 Multitrack Recording I
MU 312 Multitrack Recording II
MU 401 Recording Seminar/Project I
MU 402 Recording Seminar/Project II
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat, Waves with Laboratory
PH 250 Electromagnetism & Optics with Laboratory
EE 211 Principles of Electrical Engineering I
EE 212 Principles of Electrical Engineering II

Minor in World Music

A total of 18 credit hours in world music courses other than performance are required for the minor in world music. A student's program should be planned in consultation with a member of the world music faculty.

Philosophy

Coordinator: Joel H. Marks, Ph.D.

Philosophy looks at fundamental assumptions about the nature of reality and human existence. Are people nothing but organic robots with computer brains? Or do we have eternal souls? Is it possible to love unselfishly? Is the world as it appears? Was there a Creation, or only a Big Bang? Does the mind exist separately from the brain? Is reason the slave of the passions? Do we live in the best of all possible universes? Is it better to be a human being dissatisfied than a pig satisfied?

Philosophy courses at UNH examine Western thought from ancient times to the present, as well as the major traditions of the Orient. The inquiry is at once speculative and disciplined. Logic is the method used throughout.

Minor in Philosophy

The minor in philosophy provides ample opportunity to consider many fascinating and important questions like the ones mentioned above. It is also very useful: Philosophy has helped people prepare for careers in such diverse fields as computer systems programming, engineering, management, insurance, marketing, publishing, real estate, technical writing, government, human services, journalism, law,

medicine, teaching and research.

The minor in philosophy consists of 18 credits. The program is flexible; courses run frequently, day and evening, and can be taken in any order. Also, it is usually possible to cap your philosophical career at UNH with independent study which lets you concentrate on a single topic of interest and set up your own schedule. For more details, contact the philosophy coordinator.

Department of Mathematics

Chairman: Baldev K. Sachdeva, Ph.D.

Coordinator of Precalculus Mathematics: Shirley Wakin, Ph.D.

Professors: Donald Fridshal, Ph.D., University of Connecticut; Joseph M. Gangler, Ph.D., Columbia University; Erik Rosenthal, Ph.D., University of California; Baldev K. Sachdeva, Ph.D., Pennsylvania State University; Bruce Tyndall, M.S., University of Iowa; James W. Uebelacker, Ph.D., Syracuse University; W. Thurmon Whitley, Ph.D., Virginia Polytechnic Institute and State University

Associate Professors: Richard B. Jones, Ph.D., Virginia Polytechnic Institute and State University; Shirley Wakin, Ph.D., University of Massachusetts

Assistant Professors: Anthony D. Elmendorf, Ph.D., University of Chicago

Instructor: Eva Walter, M.S., Purdue University

The study of mathematics opens the door to a wide variety of career opportunities and academic pursuits. Mathematics is a major part of the framework of modern science and technology. Persons with strong mathematics backgrounds qualify for stimulating occupations in an ever increasing number of fields, from private industry to government service.

The mathematics department offers flexible programs in mathematics and applied mathematics with concentrations in computer science, statistics, natural sciences and mathematics. Students who do not take the computer science concentration are encouraged to consider a minor in computer science to be better prepared for our technological society. Students also may minor in mathematics.

Mathematics students have direct access to a departmental microcomputer, the university's Data General MV/8000 computer via numerous terminals distributed throughout the campus and the Microcomputer Laboratory.

Mathematics Club

The department of mathematics sponsors the Mathematics Club, which is open to all university students. The club provides students and faculty the opportunity to participate together outside the classroom, in the study of mathematics and its applications. Topics range from the serious application of mathematics to society, to avocations such as

mathematically-based puzzles and games. Typical activities of the club include guest lectures, field trips, films and social events.

Honorary Memberships

Each year, the mathematics department awards to outstanding mathematics students free honorary memberships in the Mathematical Association of America, American Mathematical Society and Society for Industrial and Applied Mathematics.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practice, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Basic Courses Required for All Mathematics Majors

All students earning a bachelor's degree in mathematics must complete the university core requirements, the course requirements for their particular math program, and the basic math courses listed below:

M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
M 204 Differential Equations
M 311 Linear Algebra
M 361 Mathematical Modeling
M 371 Probability and Statistics I

Mathematics majors are strongly urged to consider the courses listed below, either as electives or as core curriculum courses:

HU 300 The Nature of Science
PL 240 Philosophy of Science
SO 350 Survey Research

Refer to the university core requirements listed earlier in this catalog for the balance of courses needed.

B.A., Mathematics

This program is designed to provide students with a broad overview of mathematics and its applications, especially for students who wish to study pure mathematics, or for those whose career objectives include mathematics education or the application of mathematics to such fields as business, economics, the social sciences and actuarial science.

Students earning a B.A. with a mathematics major must complete a minimum 124 credit hours. These courses must include the basic courses required for all mathematics majors, which are listed above, the university core requirements listed earlier in this catalog, and the courses listed below:

Required Courses

M 321 Modern Algebra I
M 491 Departmental Seminar
CS 106 Introduction to Computers: Pascal

Plus 6 credit hours of mathematics, compatible with area of concentration, M300 series or above
8 credit hours of natural science with laboratories in two semester sequence

B.S. Applied Mathematics (Computer Science Concentration)

This program is primarily for students interested in using computing techniques to solve mathematical problems in a wide variety of disciplines. In addition to the mathematics requirements, students take eight or nine courses in computer science designed to provide training in the structure of computer languages, computing machines and computing systems.

Students in this program must complete a minimum of 125 credit hours. These courses must include the basic courses required for all mathematics majors, which are listed above; the university core requirements listed earlier in this catalog, and the courses listed below:

Required Courses

M 338 Numerical Analysis
M 472 Probability and Statistics II
CS 106 Introduction to Computers: Pascal
CS 226 Advanced Programming and Data Structures/Pascal
CS 237 Data Structures and Algorithms
CS 320 Operating Systems
CS 334 Machine Organization/Assembly Language
CS 338 Structure of Programming Languages

Plus 6 credit hours in computer science
6 credit hours in mathematics, chemistry or physics
3 credit hours in computer science, mathematics, chemistry or physics

B.S., Applied Mathematics (Natural Sciences Concentration)

This program is primarily for students whose mathematical interests are in the application of mathematics to such fields as physics, chemistry, statistics, operations research and engineering. In addition to the courses listed below, the students take five to seven courses in a single discipline of the natural sciences or engineering.

Students in this program must complete a minimum of 125 credit hours. These courses must include the basic courses required for all mathematics majors, which are listed above; the university core requirements listed earlier in this catalog, and the courses listed below:

Required Courses

M 321 Modern Algebra
M 338 Numerical Analysis I
M 491 Departmental Seminar
IE 106 Introduction to Computers: Pascal
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Plus 6 credit hours of mathematics, compatible with area of concentration,
M 300 series or above

B.S., Applied Mathematics (Statistics Concentration)

This program is designed to provide students with a background in mathematical statistics. The mathematics courses required are basic courses necessary to enable a person to gain employment as a statistician in business or government, or to pursue graduate study in statistics. These courses are also necessary for students wishing to pursue careers in the actuarial field.

Students in this program must complete a minimum of 125 credit hours. These courses include the basic courses required for all

mathematics courses which are listed above; the university core requirements listed earlier in the catalog, and the courses listed below.

Required Courses

M 270 Discrete Structures
M 303 Advanced Calculus
M 338 Numerical Analysis
M 472 Probability and Statistics II
M 473 Advanced Statistical Inference
M 481 Linear Models I
M 482 Linear Models II
M 491 Departmental Seminar
CS 106 Introduction to Computers: Pascal
PH 150 Mechanics, Heat & Waves

Plus 6 additional credit hours in mathematics courses numbered M300 or above
6 credit hours in science or computer science

Minor in Mathematics

Students may minor in mathematics by completing six mathematics courses approved by the department. Those students contemplating a minor in mathematics should consult with the department as early as possible in their academic careers as to the choice and availability of courses.

Required Courses

M 118 Calculus II
M 203 Calculus III
M 311 Linear Algebra

Plus 9 credit hours of mathematics courses which complement the major area of interest

Recommended Courses

M 204 Differential Equations
M 270 Discrete Structures *or* any course in the M 300 series or above

Physics Department

Chairman: Kee W. Chun, Ph.D.

Professors: Kee W. Chun, Ph.D., University of Pennsylvania; Richard C. Morrison, Ph.D., Yale University

Physics is concerned with the most basic aspects of our knowledge of the natural world. It is a subject in which experiment and theory evolve constantly to provide a precise and simple description of the physical phenomena around us in terms of a relatively small number of physical laws and theories.

As a fundamental science, physics is at the root of almost all branches of science and technology. It has provided the microscopic basis for chemistry, has stimulated important developments in mathematics, is the basis of most branches of engineering, and, during the past decade, has proved to be increasingly valuable to the life sciences.

Consequently, a basic knowledge of physics is excellent preparation for diverse careers: research in university and government laboratories, industrial research and development, applied science and engineering, biological and medical sciences, research in environmental problems, and teaching at all levels from the elementary school to the university. It also prepares students for careers in non-physics-related fields such as philosophy, business and law.

The department offers B.A. and B.S. degrees in physics. Degree requirements are kept flexible to allow each physics major to tailor a program suited to individual career interests. The department strives to provide a well-balanced, four-year program emphasizing both the theoretical and the experimental in the broad areas of classical and modern physics.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., B.S., Physics

All students in the B.A. or B.S. in physics program must complete at least 120 credit hours. These courses must include the university core requirements, the course requirements for their particular physics program and the courses listed below. The balance of the program will be worked out in consultation with a faculty adviser.

Required Courses

PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
PH 211 Modern Physics
PH 270 Thermal Physics
PH 280 Lasers
PH 301 Analytical Mechanics
PH 351 Intermediate Electricity and Magnetism
PH 373 Advanced Laboratory
PH 404 Senior Project
PH 415 Nuclear Physics
PH 451 Elementary Quantum Mechanics
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
M 117 Calculus I
M 118 Calculus II
M 203 Calculus III
M 204 Differential Equations

Plus 6 credit hours of computer programming electives
6 credit hours of mathematics electives
9 credit hours of physics electives

Minor in Physics

A total of 20 credit hours of work in physics is required for the minor in physics. Students may select from the courses listed below or plan their program in consultation with a faculty adviser.

Required Courses

PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
PH 211 Modern Physics

Plus 9 credit hours of advanced physics

Department of Political Science

Chairman: James Dull, Ph.D.

Professors: Caroline A. Dinegar, Ph.D., Columbia University; James Dull, Ph.D., Columbia University; Joshua H. Sandman, Ph.D., New York University

Associate Professor: Natalie J. Ferringer, Ph.D., University of Virginia

A major in political science provides the student with a foundation for a career in government on the local, state, national and international levels; for a career in law; for graduate school programs in political science, international relations and public policy; and for careers in the areas of campaign management, communication, public relations and business. All political science and pre-law majors or minors should discuss career goals and educational objectives with a department adviser within one month of entrance into the program.

Further, advice on the Law School Admissions Test (LSAT) and the Graduate Record Examination (GRE) preparation courses, which our pre-law and graduate school-oriented students are urged to take, is available through the department.

Pre-law majors and minors in the department of political science have been especially successful in gaining entrance to law schools throughout the country.

The political science faculty grants the Rollin G. Osterweis Award for Excellence in Political Science each year to the outstanding student in the political science major.

B.A., Political Science

All students in the B.A. in political science program must complete 124 credit hours. These courses must include the university core requirements and 48 credit hours of political science courses, including those listed below:

Required Courses

PS 121 American Government and Politics
PS 122 State and Local Government and Politics
PS 241 International Relations
PS 261 Modern Political Analysis
PS 281–85 (one) Comparative Government
PS 304, 308, 309 (one) Political Parties, Legislative Process, Presidency
PS 332 Constitutional Law (pre-law majors)
PS 461 Political Theory: Ancient & Medieval
PS 462 Political Theory: Modern & Contemporary
PS 499 (*or* PS 500) Senior Seminar

Plus 18–21 hours of political science electives to be chosen with student's departmental adviser.

The Institute of Law and Public Affairs

Director: Caroline A. Dinegar, Ph.D.

The Institute of Law and Public Affairs has been established to provide undergraduates with specific training in the areas of the paralegal profession, public policy and public affairs. Students with an undergraduate major in any of the schools of the university may attain paraprofessional status in legal affairs or public affairs by completing a minor in the institute. The term paraprofessional applies to those with special training in a professional field but who do not yet possess the terminal degree normally required in the profession. In many instances, paraprofessional status is a step toward the accomplishment of the final degree.

Paralegal Studies Certificate

A certificate in paralegal studies is issued to students who complete 18 credit hours of paralegal courses. The certificate is normally supported by courses in the area of political science as well as psychology and sociology. The required courses are listed below.

Required Courses

PS 238 Legal Procedure I
PS 240 Legal Bibliography & Resources (prerequisite for PS 440)
PS 440 Legal Research

Plus 9 additional credit hours from the courses in the Institute of Law and Public Affairs. Institute courses are designated by a dagger (†) in the course descriptions section.

Certificate in Public Policy (Campaign Management)

A certificate in public policy is issued to students who complete 18 credit hours of courses in areas of public affairs designed to serve the student's intellectual and professional needs. An example is the program in campaign management.

Required Courses

PS 121 American Government and Politics

Plus 5 of the following:

PS 224 Public Attitudes and Public Policy
PS 340 Campaign Management: Procedures and Operations
PS 341 Campaign Managment: Structure and Organization
PS 344 Campaign Managment: Survey Research, Polling, Computers
PS 346 Campaign Management: Financing and Election Laws
PS 450 Campaign Management: Internship

Plus Related elective courses are available.

Minor in Legal Affairs

The legal affairs minor in the Institute of Law and Public Affairs prepares students for positions as office managers, administrative assistants, legal investigators, public policy research assistants, public policy library assistants and legislative researchers in private and public

law firms and governmental agencies. Students acquire specific skills which will enable them to do important legal work under the supervision of practicing attorneys. The legal affairs minor also prepares students for positions and clerkships in the law libraries of the state. Courses are selected in consultation with a faculty adviser.

Minor in Political Science

A student may minor in political science by completing 18 credit hours in the program, including those courses listed below:

Required Courses

PS 121 American Government and Politics
PS 122 State and Local Government and Politics

Plus 12 credit hours of political science courses chosen in conjunction with a department adviser. These courses should be related to the area of student interest and concentration such as pre-law, international relations, campaign management.

Minor in Black Studies

The Black studies minor is an interdisciplinary program offered in the School of Arts and Sciences in which the department of political science participates. The minor consists of courses in political science, English, history, humanities and world music. A student may minor in this program by completing 18 credit hours including courses selected from the listing below:

Suggested Courses

PS 205 The Politics of the Black Movement in America
HS 120 History of Blacks in America
MU 112 Introduction to World Music
MU 550 Studies in Urban Ethnic Music
P 321 Social Psychology
PL 213 Contemporary Issues in Philosophy I
PL 214 Contemporary Issues in Philosophy II
SO 114 Contemporary Social Problems
SO 315 Social Change
SO 400 Minority Group Relations
SO 410 Urban Sociology

Minor in Public Affairs

The public affairs minor in the Institute of Law and Public Affairs is directed towards providing training for civil service positions at all levels of government. The goal of such training is to provide more effective public administrators and to introduce creativity into the profession of public service. The public affairs minor will take a problem-solving approach to the discipline as students will be conducting basic, in-depth research on problems of governmental agencies. Students in this minor will be able to develop valuable insights into the nature of the public policy process from the vantage point of the bureaucracy.

Courses are selected in consultation with a faculty adviser.

Department of Psychology

Chairman: Thomas L. Mentzer, Ph.D.

Professors: Robert D. Dugan, Ph.D., Ohio State University; Robert J. Hoffnung, Ph.D., University of Cincinnati; Arnold Hyman, Ph.D., University of Cincinnati; Thomas L. Mentzer, Ph.D., Brown University; Michael Morris, Ph.D., Boston College; Michael W. York, Ph.D., University of Maryland

Associate Professor: Benjamin B. Weybrew, Ph.D., University of Colorado

Assistant Professor: Gordon R. Simerson, Ph.D., Wayne State University

Psychology faces the questions that are of most immediate concern to the individual: problems such as personal identity, the social context, normalcy versus deviance and behavior change. As a science, psychology is devoted to the understanding, prediction and control of behavior.

Our dedication to these goals requires that we study behavior from a number of viewpoints—development, learning, social, physiological, abnormal personality—each fascinating in its own right. The student's attention also is drawn to the many settings in which behavior occurs, from the family to the laboratory, from the clinic to the marketplace. This great diversity ensures that the study of psychology will interrelate well with other courses in the humanities and sciences.

The undergraduate program in the department of psychology combines basic science and applications to prepare students for further professional training in psychology or for careers in human services delivery, law, education, business and industry.

The program features specialty concentrations in community-clinical psychology and industrial/organizational psychology for those students who have well-defined professional goals. The general psychology concentration permits students to tailor their preparation toward other specialty areas. Psychology majors are encouraged to broaden their preparation by taking courses or minors in sociology, political science, social welfare, management, computer science, criminal justice, mathematics and biology.

The psychology major develops skills in design and analysis of research and effective communication through the study of statistics, experimental methods, psychological measurement and psychological theory. Through involvement with behavior therapy and community psychology field work, the student can confront behavior problems in a more direct, practical fashion. The department feels that it is only through a thorough grounding in basic skills and principles that students can effectively realize their goals.

The psychology program benefits from a psychology laboratory building on the main campus. The laboratory contains facilities for student and faculty research with human and animal subjects. Specialized apparatus permits the study of human and animal learning, sensory capacities, social processes and biofeedback control.

The University of New Haven also offers the master of arts degree in community psychology and industrial/organizational psychology as well as a senior professional certificate in applications of psychology. For descriptions of these programs, see the Graduate School catalog.

Psychology Club

Students in psychology have the opportunity to participate in the Psychology Club. Its purpose is to provide opportunities both to socialize and to develop students' interests in the science and profession of psychology. Throughout the year, the club sponsors guest lecturers and a variety of field trips. All students are welcome to join.

Psi Chi Honor Society

Membership in the university chapter of Psi Chi, the national honor society, is open to students in the top 35 percent of their class who have completed at least nine credit hours of psychology with grades of **B** or better, and who are making the study of psychology one of their major interests.

Graduating seniors also may nominate themselves for the annually-awarded McGough psychology prize.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practice, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Psychology

The B.A. in psychology program requires the completion of 120 credits, 43 of which are required to complete the major.

Required Courses

P 111 Introduction to Psychology
P 301 Statistics for the Behavioral Sciences
P 305 Experimental Methods in Psychology
P 306 Psychology Laboratory
P 315 Human and Animal Learning
P 341 Psychological Theory

The required courses comprise 19 credit hours of the 43 required for the major. To complete the major, students must complete 9 credit hours of psychology restricted electives and one of the three 15 credit hour concentrations described below. P 211, The Psychology of Effective Living, cannot be taken to satisfy major requirements.

The psychology restricted electives are selected by the student in consultation with the academic adviser. Suggested electives for the community-clinical concentration are: P 316, P 321, P 331, P 332, P 351, P 361, P 370. Suggested electives for the industrial/organizational concentration are: P 316, P 336, P 351, P 361, P 370.

Psychology majors are required to take a number of courses in other departments, some of which satisfy university core curriculum requirements: BI 121 and BI 122, General and Human Biology I and II; M 127 Finite Mathematics; SO 113 Sociology; one literature and one philosophy elective, one of which must be from the core curriculum approved course list.

It should be noted that M 127, P 301 and P 305 constitute a sequence of courses incorporating computer use. Those courses satisfy the core curriculum computer literacy requirement and must be taken in that order.

Community-Clinical Psychology Concentration

P 216 Psychology of Human Development
P 330 Introduction to Community Psychology
P 336 Abnormal Psychology
P 350 Human Assessment
P 375 Foundations of Clinical/Counseling Psychology

Industrial/ Organizational Psychology Concentration

P 212 Business and Industrial Psychology
P 321 Social Psychology
P 350 Human Assessment
P 355 Organizational Behavior
P 356 Psychology of Training and Development

General Psychology Concentration

The general psychology concentration consists of 15 credit hours of psychology electives beyond the required courses.

Minor in Psychology

Psychology, perhaps more than any other subject, relates closely to many other disciplines. A minor in psychology prepares you for graduate study in the field and can add another dimension to your studies in other programs at the university. A total of six courses is required for a minor in psychology.

Required Courses

P 111 Introduction to Psychology
P 301 Statistics for Behavioral Sciences (with laboratory)
P 305 Experimental Methods in Psychology

Plus 9 additional credits of psychology electives

There are two exceptions to the minor program described above: Business students whose programs require QA 216 will be permitted to substitute QA 216 for P 301; and students whose programs require SO 250, Research Methods, may substitute another psychology course for P 305. It should be noted that P 211, The Psychology of Effective Living, cannot be used to satisfy the requirements for the psychology minor.

Department of Sociology

Chairman: Faith H. Eikaas, Ph.D.

Professors: Faith H. Eikaas, Ph.D., Syracuse University; Walter Jewell, Ph.D., Harvard University; Allen L. Sack, Ph.D., Pennsylvania State University

Associate Professor: Judith Bograd Gordon, Ph.D., University of Michigan

Sociology is the study of social life and the social causes and consequences of human behavior. Sociology's subject matter ranges from analysis of families, corporations, cities and sports to sexuality, death, race, gender and ethnicity as well as the impact of demographic and environmental policies and other social phenomena. The sociological perspective is empirically grounded and sufficiently broad

to be relevant to those considering careers in related fields such as research, governmental service, social work, personnel management, advertising, law, medicine, journalism, social gerontology and travel and tourism.

Career preparation is one focus of the department. Students will select or be assigned an academic adviser. Together they design a personalized program to meet student needs and career goals. Whether the student's interest is in understanding and appreciating theories and methods of sociology for their own sake or in specific career preparation, a major in sociology will be of great benefit for students who become engaged both in understanding their own social worlds and the global world of which they are a part.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practice, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.A., Sociology

All students in the B.A. in sociology program must complete 121 credit hours. These courses must include the university core requirements listed earlier in the catalog and 33 credit hours of sociology courses, including the courses listed below:

Required Courses

SO 113 Sociology
SO 114 Social Problems *or* SO 214 Deviance
SO 218 Community
SO 221 Cultural Anthropology
SO 250 Research Methods
SO 413 Social Theory
SO 440 Senior Seminar
SO 501-502 Practicum *or* SW 401-402 Fieldwork

Plus 8 restricted electives (student may choose to take both SO 114 and SO 214) selected in consultation with the academic adviser.
Core curriculum computer literacy requirement: M 127, P 301 *or* M 228, SO 350

Minor in Sociology

Students must take 18 credit hours to minor in sociology. Students should consult with a faculty adviser to select the nine credit hours of unspecified sociology courses. The adviser will suggest a combination of courses which focus on the student's interests and concerns. The required courses are listed below:

Required Courses

SO 113 Sociology
SO 250 Research Methods
SO 413 Social Theory

9 credit hours of sociology (two at the 300-level or above, selected with your adviser)

Social Service Concentration

The concentration in social services focuses on integrating a student's knowledge of the social service system, human behavior and the social environment, the social work profession, social research, practice skills and field experience in preparation for entry-level social service positions in a variety of settings and institutions. The concentration is sufficiently flexible so students acquire the basic knowledge and skills of the social work profession, but have an opportunity to sample other career paths as well. The concentration is particularly suitable for students who are preparing for graduate professional education in social work as well as those interested in community service, counseling, gerontology, law, urban planning and health-service administration.

An academic adviser will work closely with the student in suggesting electives which complement the personal needs and professional goals of the student. In addition to the courses required for the sociology major, this concentration requires the following courses:

Required Courses

SW 220 Introduction to Social Welfare
SW 340 Group Dynamics *or* CJ 301 Group Dynamics
SO 333 Aging
SW 415-16 Methods of Intervention I and II

Minor in Anthropology

Students must take 18 credit hours to minor in anthropology. It is imperative that students consult with a faculty adviser to plan a program of courses that focus on anthropological issues and practices. The required courses are listed below:

Required Courses

SO 220 Physical Anthropology and Archaeology
SO 221 Cultural Anthropology
SO 250 Research Methods *or* SO 450 Research Seminar

Plus 9 credit hours of anthropology-relevant courses selected with the assistance of the academic adviser.

Robert B. Dodds Hall
School of Business

SCHOOL OF BUSINESS

Marilou McLaughlin, Ph.D., dean

As the business world rapidly grows more complex, the need increases for a sophisticated and scientific approach to business, government and other organizational forms. The primary objective of the UNH business school is to prepare students for responsible and important jobs in management. A post-industrial society such as ours requires imaginative, analytical people. To meet this need, the School of Business provides a broad professional education preparing students to assume significant managerial positions. The curriculum emphasizes analytical tools needed to solve the intricate problems of today's organizations.

Graduate programs in business are primarily professional degree programs in which the major objective is to develop practitioners of business and administration. Many men and women who are enrolled are at the same time employed in various public and private organizations and are working toward their degrees on a part-time basis.

Programs and Concentrations

Bachelor of Science

Accounting
- Financial Accounting
- Managerial Accounting

Business Administration
- Human Resources Management
- Management Information Systems
- Management of Sports Industries

Business Economics

Communication
- Managerial and Organizational Communication
- Mass Communication
- Public Relations

Criminal Justice
- Correctional Administration
- Forensic Science
- Law Enforcement Administration
- Law Enforcement Science
- Security Management

Finance

International Business

Marketing

Public Administration
- City Planning and Management
- Health Administration

Associate in Science

Business Administration
Communication
Criminal Justice

Certificate Programs

Journalism
Law Enforcement Science
Mass Communication
Security Management

Graduate Programs

Master of Business Administration

Master of Business Administration for Executives (EMBA)

Master of Public Administration

Master of Science

Accounting
Criminal Justice
Forensic Science
Industrial Relations
Taxation

Doctor of Science in Management Systems

Senior Professional Certificates

Accounting and Taxation
Economic Forecasting
Finance
General Management
Human Resources Management
International Business
Marketing
Public Management
Quantitative Analysis

General Policies in the School of Business

- Each student will be assigned an academic adviser.
- A student may select a business major after consultation with the adviser or the appropriate chairman.
- A student may select a minor after consultation with the adviser or the appropriate chairman.
- No coordinated course offering credit or transfer credit will be accepted for UNH juniors or seniors from two-year colleges. (See also "Coordinated Course" section.)
- To receive a degree from the School of Business, the last thirty credits must be awarded by the University of New Haven.
- A minimum of 121 semester hours is required for graduation.

Admission Criteria

An applicant for admission to business programs must be a graduate of an approved secondary school or the equivalent. While no set program of high school subjects is prescribed, an applicant must meet the standard of the university with respect to the high school average. Applicants must present 15 acceptable units of satisfactory work, including nine or more units of college preparatory subjects. Satisfactory scores on College Entrance Examination Board Scholastic Aptitude Tests (S.A.T.) or American College Testing (A.C.T.) program tests are required. See the Admission section in the beginning of this catalog.

University Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the university core curriculum. See the Core Curriculum section of this catalog for the list of requirements. It should be noted that, whenever possible, liberal arts and lower division requirements should be completed by the end of the sophomore year.

Common Courses for Business Programs

Students earning bachelor degrees in School of Business programs must complete the basic business curriculum shown below, as well as the university core requirements and the course requirements for their chosen major.

Required Courses

A 101 Introduction to Financial Accounting*
A 102 Introduction to Managerial Accounting*
CO 100 Human Communication
EC 100 Economic History of the U.S.
EC 133 Principles of Economics I
EC 134 Principles of Economics II
FI 113 Business Finance
IB 312 International Business
LA 101 Business Law (for non-accounting majors)
MG 125 Management and Organization
MK 105 Principles of Marketing

Plus 6 credits of statistics and/or research methods courses, 1 advanced management course

* Accounting majors and students who wish to take advanced accounting courses must substitute A111 and A112, which are prerequisites for all advanced accounting courses.

Department of Accounting/Finance

Chairman: Robert M. Rainish, Ph.D.

Professors: Peter I. Berman, Ph.D., Johns Hopkins University; Satish Chandra, J.S.D., Yale University; William S. DeMayo, C.P.A., M.B.A., New York University; Robert M. Rainish, Ph.D., City University of New York

Associate Professors: Ernest M. Dichele, C.P.A., LL.M., Boston University School of Law; Edward A. Downe, Ph.D., New School for Social Research; Eleanor Fillebrown, C.P.A., M.B.A., M.S., Drexel University; Robert McDonald, C.M.A., M.B.A., New York University; Richard Reimer, C.P.A., M.S., Columbia University; Robert E. Wnek, C.P.A., LL.M., Boston University School of Law

Assistant Professor: Michael Rolleri, C.P.A., M.B.A., University of Connecticut

The accounting/finance department is responsible for courses in accounting, business law, finance and taxation. While the study of accounting and finance has its roots in economic theory, the courses emphasize practical application to real world problems.

The study of accounting emphasizes the economic decision-making process as well as the principles and procedures used to produce the information required by decision makers. Accounting promotes an appreciation for not only the nature of accounting information but also the use of that information in the complex process of decision making by individuals, business firms and government. The department of accounting/finance at the University of New Haven seeks to serve the educational needs of those involved in all areas of accounting—public, private, or governmental.

Students must select from a financial accounting or managerial accounting program of study.

Finance, as an area of study, is designed to promote an analytical appreciation of the financial system and the financial decision-making process in which society, through its individuals, business firms and governments, is continually engaged.

In particular, the study of finance provides a structured analysis of the financial system and the financial decision-making process as determinants of the economic wealth of the individual, the business firm and the nation. The study of finance enables the student to pursue the preparation required for a number of financial decision-making positions in government and industry, including the entire variety of financial institutions.

There are many career opportunities for students in the business world, government and academia. Accounting and finance professionals are needed by consulting firms, public accounting firms and private industry, as well as by federal, state and local governments. Because of the practical orientation of the program, future business entrepreneurs can benefit by the background obtained in these programs.

The accounting department at the University of New Haven offers courses at the bachelor and master's level for the study of accounting. The department also offers undergraduate career minors in real estate and insurance to students majoring in financial or managerial accounting. The career minor is designed to offer specialized study to those planning careers in the real estate or insurance fields.

Accounting students may select electives from other disciplines such as computer science, economics and finance.

On the graduate level, the department offers programs leading to a master of science in accounting and in taxation. A concentration in accounting is also available to students enrolled in the master of business administration program.

Graduate course offerings for the study of finance may be selected to comprise a concentration in finance by the student pursuing the master of business adminsitration degree. Complete information about these graduate programs is available in the Graduate School catalog.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op Office.

B.S. Accounting

Students in the accounting major may select from concentrations in financial or managerial accounting.

The financial accounting concentration is selected by those students wishing to pursue a career in public accounting leading to the certified public accountant (C.P.A.) license. The integration of business law, taxation and finance into the program provides the student with the necessary academic background to meet the challenges of the accounting profession.

The managerial accounting concentration is selected by students wishing to pursue a career in private accounting as management accountants including the possible attainment of the certificate of management accounting (C.M.A.). The program provides for courses at the advanced levels in finance and economics, in order to prepare the student for the kinds of decisions likely to be made within the organizational structure.

Required Courses

Students earning a B.S. in accounting are required to complete 121 credits including the university core curriculum, common courses for business majors and the courses listed below.

A 220	Intermediate Accounting I
A 221	Intermediate Accounting II
A 222	Intermediate Accounting III
A 223	Cost Accounting I
A 224	Cost Accounting II
A 331	Advanced Financial Accounting I
A 333	Auditing Principles
A 335	Federal Income Taxation I
A 336	Federal Income Taxation II
LA 111	Accounting Business Law I
LA 112	Accounting Business Law II

Accounting majors take A 111 and A 112 instead of A 101 and A 102 in the common courses for business programs. A 111 and A 112 are prerequisites for advanced accounting courses.

Concentration in Financial Accounting

Students earning the B.S. in accounting must complete 121 credit hours, including the university core curriculum, common courses for business majors, the common courses for accounting majors listed above, and the following:

A 334	Auditing Procedures
A 337	Federal Income Taxation III

Concentration in Managerial Accounting

Students earning a B.S. in accounting with a concentration in managerial accounting must complete 121 credit hours, including the university core curriculum, common courses for business majors, the common courses for accounting majors listed above, and the following:

A 225	Advanced Managerial Accounting
FI 229	Corporate Financial Management
QA 333	Advanced Statistics

B.S., Finance

Required Courses*

Students earning a B.S. in finance must complete 121 credit hours including the university core curriculum, common courses for business majors, and the following:

FI 229 Corporate Financial Management
FI 230 Investment Analysis
FI 341 Financial Decision Making
FI 345 Financial Institutions and Capital Markets
A 220 Intermediate Financial Accounting I
A 221 Intermediate Financial Accounting II
A 350 Accounting Information Systems
EC 340 Microeconomic Analysis
EC 341 Macroeconomic Analysis
QA 216 Probability and Statistics
QA 250 Quantitative Techniques II
QA 333 Advanced Statistics

* Finance majors should take A111 and A112 instead of A101 and A102.

A student majoring in finance may add a minor in economics, accounting or quantitative analysis to the above.

Minor in Accounting

Requirement for the accounting minor include a total of 18 semester hours. Students must complete the following courses:

A 111 Introduction to Accounting I
A 112 Introduction to Accounting II
A 220 Intermediate Financial Accounting I
A 221 Intermediate Financial Accounting II

Plus two additional accounting courses with consent of the undergraduate accounting co-ordinator.

Minor in Finance

Requirements for the finance minor include a total of 18 semester hours. Students must complete the following four courses:

FI 113 Business Finance
FI 229 Corporate Financial Management
FI 230 Investments
FI 345 Financial Institutions and Markets

In addition, after conferring with faculty, the student must select two of the following courses:

FI 325 International Finance
FI 341 Financial Decision Making
EC 341 Macroeconomic Analysis
EC 336 Money and Banking

Department of Communication

Chairman: Steven A. Raucher, Ph.D.

Professors: M.L. McLaughlin, Ph.D., University of Wisconsin

Associate Professors: Jean-Richard Bodon, Ph.D., Florida State University; Steven A. Raucher, Ph.D., Wayne State University

Assistant Professor: Donald C. Smith, Ph.D., University of Massachusetts (Amherst)

Communication majors encounter a multifaceted exploration of the human communication process. The major allows for a blend of theory and practice in courses which emphasize professional standards and applications. Students learn concepts and skills which enable them to better understand and become active participants in the business/media world, and can prepare for graduate studies as well. This program of study involves both academic rigor and practical experience.

The department has internship contacts with a number of organizations in the greater New Haven area and works closely with the local media. Communication majors are involved in the student newspaper, radio station and the programming of local cable television.

Institutional memberships which the department enjoys include the Connecticut Broadcasters' Association, the International Association of Business Communicators, the Audit Bureau of Circulation and the Speech Communication Association. Faculty members and some students belong to such professional organizations as the International Communication Association, the Public Relations Society of America, the Eastern Communication Association, the National Forensics Association, the National Academy of TV Arts and Sciences, the National Academy of Cable Programming, the National Federation of Local Cable Programming, the American Film Institute and the Broadcast Educators Association.

In the interest of student advancement and the development of professional contacts the department sponsors and advises several student organizations including the Communication Club and the Public Relations Student Society of America.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables students to combine their education with practical, paid work experience in their career field. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op Office.

B.S., Communication

Required Courses

Students earning the B.S. in communication must complete 121 credit hours, along with university requirements, and all common courses for business majors. Communication majors will take:

CO 101 Fundamentals of Mass Communication
J 101 Journalism I
CO 109 Communication for Management and Business
CO 114 Elements of Production
CO 200 Theories of Group Communication
CO 205 Intercultural Communication
CO 208 Introduction to Broadcasting
CO 300 Persuasive Communication
CO 302 Social Impact of Media
CO 500 Seminar in Communication Studies

and choose from one of three concentration areas:

Managerial and Organizational Communication
Public Relations
Mass Communication

These concentrations are designed for students with a wide range of interests. Whether students envision becoming communication consultants, television camera operators, broadcasters, journalists, producers of documentary films, business managers, lawyers, politicians, informed citizens, or researchers investigating the effects of communication on society and why people say what they say, it is the department's objective to assist students in the pursuit of these goals and to provide them with a sound academic background.

Concentration in Managerial and Organizational Communication

Students earning the B.S. in communication with a concentration in managerial and organizational communication must complete the university core curriculum, the common courses for business majors, the common courses for communication majors listed above, and the following:

CO 309 Media Campaigns
CO 400 Communication in Organizations
CO 408 Public Relations Systems
CO 410 Management Communication Seminar

Concentration in Mass Communication

Students earning the B.S. in communication with a concentration in mass communication must complete the university core curriculum, the common course for business majors, the common courses for communication majors listed above, and the following:

CO 212 TV Production I
CO 214 Elements of Film
CO 103 Audio in Media *or* CO 220 TV Production II
CO 203 Radio Production *or* CO 312 Film Production

Concentration in Public Relations

Students earning the B.S. in communication with a concentration in public relations must complete the university core curriculum, the common courses for business majors, the common courses for communication majors listed above, and the following:

J 311 Copy Desk
CO 309 Public Relations Writing
CO 408 Public Relations Systems
MK 307 Advertising and Promotion

B.A., Communication

For more information on the B.A. in communication, see the School of Arts and Sciences section of this catalog.

A.S., Communication

Upon successful completion of the first two years of the four-year bachelor of science program in communication, students may petition to receive an associate in science degree with a major in communication. Students should consult with an adviser for specific information.

Minor in Communication

A total of 18 semester hours of communication course credits must be earned in order for a student to declare the area of study as a completed minor. This work must include CO 100 Human Communication. The balance of the minor program is worked out in individual conference with the student and his or her communication department adviser.

Communication Certificate Programs

Coordinator: Steven A. Raucher, Ph.D.

The communication department offers certificates in journalism and mass communication. Students must complete 15 credit hours to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Mass Communication Certificate

This program offers options in television production, radio production, writing for media, interpersonal communication or a combination of radio/television and film. All students are required to take 15 credit hours, including the courses listed below:

Required Courses

CO 100 Human Communication
CO 101 Fundamentals of Mass Communication
CO 302 Social Impact of Media

Journalism Certificate

For more information on journalism certificate requirements, please refer to the School of Arts and Sciences section under the communication programs.

Graduate Studies

The communication department offers several graduate concentrations. Please consult the graduate catalog for more information.

Department of Economics

Chairman: John Teluk, M.A.

Professors: Phillip Kaplan, Ph.D., The Johns Hopkins University; Joseph A. Parker, Ph.D., University of Oklahoma; Alan Plotnick, Ph.D., University of Pennsylvania; Franklin B. Sherwood, Ph.D., University of Illinois; John J. Teluk, M.A., Free University of Munich

Associate Professor: Gilbert McNeill, Ph.D., University of Geneva; Ward Theilman, Ph.D., University of Illinois

Assistant Professors: Mary Martha Woodruff, M.A., Murray State University, M.S., University of New Haven; Steven J. Shapiro, M.A., Georgetown University

Economics courses provide a basis for an understanding of economic structures, a wide range of domestic and international issues and trends in the economic life of modern societies. These courses offer training in analysis of economic problems as an aid to the evaluation of economic policies.

Introductory courses are designed to provide the foundation of economic knowledge which every citizen in a modern complex society should have so they may understand the decisions of individual economic units and the operation of a national economy as a whole.

Advanced courses are designed primarily for economics and business majors. They cover in depth specific economic topics. They also prepare students for economic research and management positions in financial institutions, individual organizations, government or graduate study and teaching.

The department of economics has two major objectives: to function as a service department for other departments in the School of Business and other schools of the university and to offer a specialized education to students majoring in economics.

Students majoring in economics may choose either a bachelor of science in business economics or a bachelor or arts in economics.

B.S., Business Economics

The program in business economics is designed to prepare students for research or executive positions in business or government.

Required Courses

Students earning a B.S. in business economics must complete 121 credit hours including the university core curriculum, the common courses for business majors and those courses listed below:

EC 250 Economics and United States Industrial Competitiveness
EC 311 Government Regulation of Business
EC 312 Contemporary Economic Problems
EC 336 Money and Banking
EC 341 Macroeconomic Analysis
EC 420 Applied Economic Analysis

Plus two of the following:

EC 314 Public Finance and Budgeting
EC 340 Microeconomic Analysis
EC 342 International Economics
EC 350 Economics and Labor Relations

B.A., Economics

For information about the B.A. program in economics, see the School of Arts and Sciences section of this catalog.

Minor in Economics

Eighteen credit hours of economics courses are required for a minor including those listed below:

Recommended Courses

EC 133 Principles of Economics I
EC 134 Principles of Economics II
EC 341 Macroeconomic Analysis
EC 420 Applied Economic Analysis

Plus 6 credits of economics electives to be chosen from:

EC 312 Contemporary Economic Problems
EC 314 Public Finance and Budgeting
EC 340 Microeconomics
EC 345 Comparative Economic Systems
EC 350 Economics of Labor Relations

Department of Management

Chairman: Wilfred Harricharan, Ph.D.

Professors: Lynn Ellis, D.P.S., Pace University; Wilfred R. Harricharan, Ph.D., Cornell University; William S.Y. Pan, Ph.D., Columbia University

Associate Professors: Robert W. Baeder, Ph.D., Ohio State University; William Bockley, Ph.D., Boston College; Pawel Mensz, Ph.D., Polish Academy of Sciences; Abbas Nadim, Ph.D., University of Pennsylvania-The Wharton School; Judith Neal, Ph.D., Yale University

Assistant Professors: Frank T. Flaumenhaft, M.B.A., New York University; Charles Wankel, M.B.A., New York University

Instructor: Richard Bassett, M.B.A., University of New Haven

At this time in history when all of society's systems—governmental, technological, societal, educational, industrial and military as well as business—are becoming more sophisticated and complex, the need for skilled managers has never been greater. As automation frees people

from having to deal directly with materials and the computer lessens the burden of processing data, today's managers are able to direct their energies to planning, organizing, directing and controlling—the four major functions of management.

The management programs at UNH seek to provide students with the foundations of knowledge and skill necessary for moving to positions of responsibility in management. The theories and methods of analyzing decisions studied prepare students for entry-level jobs, as well as sharpen the skills of those already holding organizational positions. The underlying concept is to combine adequate specialization with the integrative point of view required of the manager.

The department of management offers degree programs in the following areas: associate of science degree program in business administration and bachelor of science degree programs in business administration with concentrations available in human resources management, management information systems and management of sports industries.

Management Club

The department of management sponsors a student chapter of the Society for the Advancement of Management (SAM) which is open to students interested in the art and science of professional management. This organization provides students and faculty with a professional and social experience that cannot be found in the classroom. Speakers, films, discussion groups and other activities are scheduled and open to all those interested in attending.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op Office.

B.S., Business Administration

In order to function effectively in a variety of management situations, administrators should be conversant with all major areas of management. Moreover, they should have a thorough understanding of the interrelationships which exist among the different functional groups within organizations. This point of view is essential for managers who are to participate effectively with others in the administrative group and who are to administer activities in their areas of responsibility in the best interest of the entire organization.

Required Courses

Students earning the B.S. in business administration must complete 121 credit hours including the university core curriculum, the common courses for business majors and the courses listed below:

MG 231 Industrial Relations
MG 350 Advanced Management
MG 455 Managerial Effectiveness
MG 512 Contemporary Issues in Business and Society
MG 515 Management Seminar
MK 413 International Marketing Management

Three concentrations designed to meet individual student interests and needs are available within the B.S. business administration program: human resources management; management information systems and management of sports industries.

Concentration in Human Resources Management

The major responsibility for human resources management is to attract, develop and retain qualified personnel for the organization. The major applies the research of the behavioral and social sciences in manpower planning, personnel selection, compensation, planning adjustment to change and the development of organizational performance. Industrial relations examines the organization of workers and union-management relations.

Students concentrating in this concentration study established and developing systems for the resolution of conflict and the building of viable, accommodative relationships between employers and employees. Emphasis is placed upon the interaction of labor, management and the government in establishing rates, hours and conditions of work. The approach is keyed to an institutional analysis of collective manpower problems and issues within an economic and organizational framework.

Students earning the B.S. in business administration with a concentration in human resources management must complete the university core curriculum, the common courses for business majors, the common courses for business administration majors listed above, and the following:

CO 300 Persuasive Communication
CO 410 Management Communication Seminar
MG 232 Labor Management Relations
MG 332 Management of Compensation
MG 520 Current Issues in Human Resource Management

Concentration in Management Information Systems

Management use of quantitative methods has been increasingly reinforced by the application of high speed computer technology and techniques in organizations. The advances in simulation, mathematic programming, decision theory and computer control systems have generated a need for personnel well trained in both the management sciences and the computer and information sciences.

Students earning the B.S. in business administration with a concentration in management information systems must complete the university core curriculum, the common courses for business majors, the common courses for business administration majors listed above, and the following:

MS 300 Microcomputers for Managers
MS 400 Management Planning and Control Systems
MS 401 EDP Security Planning
MS 460 Information Systems for Operation and Management
CS 108 Introduction to Programming/Basic

Concentration in Management of Sports Industries

Management of Sports Industries is a course of study for the student looking for a growing high-tech career in an exciting, fast-paced, people-oriented field. It is offered by the University of New Haven School of Business as a concentration in the business administration program.

Sports industries are expanding and have a growing need for individuals who are trained in specialized business administration and management skills and who understand the unique aspects of sports industries. Sports organizations from professional clubs to sports arenas and college athletic facilities all require management by trained professionals.

Students earning the B.S. in business administration with a concentration in management of sports industries must complete the university core curriculum, the common courses for business majors, the common courses for business administration majors listed above, and the following:

MG 120 Development of American Sports
MG 130 Management of Sports Industries
MG 235 Public Relations in Sports
MG 325 Sports Industries and the Law
MG 430 Financial Management for Sports Administration

A.S., Business Administration

Students earning the A.S. in business administration must complete 60 credit hours including those courses listed below:

MG 125 Management & Organization
MG 231 Management of Human Resources
A 101 Introduction to Accounting
LA 101 Business Law
MS 200 Business Systems Analysis
QA 118 Business Math
EC 100 Economic History of U.S.
EC 134 Principles of Economics I
MK 105 Principles of Marketing
QA 128 Quantitative Technology
A 102 Introduction to Managerial Accounting
FI 113 Business Finance

Minor in Business Administration (for Non-Business Majors)

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The minor in business administration is open to non-business majors. The courses required for a minor in business administration are listed below:

A 101 Introduction to Financial Accounting
MK 105 Principles of Marketing
MG 231 Industrial Relations
MG 350 Advanced Management
MG 455 Managerial Effectiveness
MG 125 Management & Organization

Minor in Management (for Business Majors)

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in management are listed below:

MG 231 Industrial Relations
MG 232 Labor Management Relations
MG 350 Advanced Management
MG 455 Managerial Effectiveness
MG 512 Contemporary Issues in Business and Society

Department of Marketing and International Business

Coordinator: Robert P. Brody, D.B.A.

Professor: Thomas Katsaros, Ph.D., New York University

Associate Professor: Robert P. Brody, D.B.A., Harvard University

Assistant Professors: Michael Kublin, Ph.D., New York University; David Morris, Ph.D., Syracuse University

The study of marketing comprises both managerial and societal perspectives. Emphasis is placed heavily on the coordination of product, promotion, price and distribution policies optimally designed to relate the firm to its competitive environment. Societal dimensions include issues in consumer protection, legal and social responsibilities of the firm, and analyses of marketing's contribution to the total society.

International business is an interdisciplinary program which draws on areas of marketing, management, finance and economics in order to develop a multinational perspective on contemporary business opportunities throughout the world. It deals with the problems of developing and adapting business practices to operate within different economic, political and cultural systems.

Marketing Clubs

The department of marketing and international business sponsors a student chapter of the American Marketing Association (AMA), which is open to students interested in the art and science of marketing. The student chapter provides students and faculty with a professional and social experience that cannot be found in the classroom. Speakers, films, discussion groups and other activities are scheduled and open to all those interested in attending.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op Office.

B.S., Marketing

Marketing focuses on activities instrumental to the efficient flow of goods and services from producers to consumers. Marketing concepts are widely applied to government agencies, political campaigns, hospitals and various other social organizations, as well as business and industry.

The study of marketing includes both managerial and societal perspectives. Managerial emphasis is placed heavily on the coordination of product, promotion, price and distribution policies optimally designed to relate the firm to its competitive environment. Societal dimensions include issues in consumer protection, legal and social responsibilities of the firm, and analysis of marketing's contribution to the total society.

Individual coursework is primarily designed to prepare majors for either a career in business or administration. Students may specialize in such areas as advertising, sales, logistics, marketing research, buyer behavior or marketing management.

Required Courses

Students earning a B.S. in marketing must complete 121 credit hours. These courses must include the university core curriculum, common courses for business majors and the courses listed below:

MK 205 Consumer Behavior
MK 302 Industrial Marketing
MK 307 Advertising and Promotion
MK 413 International Marketing Management
MK 442 Marketing Research and Information Systems
MK 470 Business Logistics
MK 515 Marketing Management
MG 512 Contemporary Issues in Business and Society

Plus other courses to be selected with an adviser

B.S., International Business

International business is an interdisciplinary program which draws on areas of marketing, management, finance and economics in order to develop a multinational perspective on contemporary business opportunities throughout the world. It deals with the problems of developing and adapting business practices to operate within different economies, different political systems and different cultures.

A background in international business prepares the student for careers in both the private and public sectors, as well as in international non-profit institutions.

Required Courses

Students earning a B.S. in international business must complete 121 credit hours. These courses must include the university core curriculum, common courses for business majors and the courses listed below:

FI 325 International Finance
IB 321 Operation of Multinational Corporations
IB 549 International Business Policy
EC 345 Comparative Economic Systems
MG 350 Advanced Management
MK 413 International Marketing Management

Plus two of the following:

PS 241 International Relations
EC 342 International Economics
EC 440 Economic Development
PS 281 Comparative Economic Systems: Asia
PS 282 Comparative Political Systems: Europe

Minor in Marketing

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in marketing are listed below:

MK 105 Principles of Marketing
MK 205 Consumer Behavior
MK 307 Advertising and Promotion

MK 442 Marketing Research and Information Systems
MK 515 Marketing Management

Plus a course in international business, with the approval of the coordinator.

Minor in International Business

A total of 18 semester hours of business course credits must be earned in order for a student to declare the field as a completed minor area of study. The courses required for a minor in international business are listed below:

IB 312 International Business
IB 321 Operation of Multinational Corporations
IB 549 International Business Policy
MK 413 International Marketing Management

Plus two of the following:

EC 345 Comparative Economic Systems
EC 440 Economic Development
PS 241 International Relations
PS 281 Comparative Political Systems: Asia *or*
PS 282 Comparative Political Systems: Europe

Department of Public Management

Chairman: Charles N. Coleman, M.P.A.

Criminal Justice

Security Management: David A. Maxwell, J.D., C.P.P., coordinator

Forensic Science: R.E. Gaensslen, Ph.D., director; Henry C. Lee, Ph.D., practitioner-in-residence, chief criminalist and director, Connecticut State Police Forensic Science Laboratory

Professors: Richard E. Farmer, Ed.D., Boston University; R.E. Gaensslen, Ph.D., Cornell University; L. Craig Parker, Ph.D., State University of New York at Buffalo, Gerald D. Robin, Ph.D., University of Pennsylvania

Associate Professor: David A. Maxwell, J.D., University of Miami

Practitioners-in-Residence: Lloyd S. Goodrow, J.D., University of Connecticut; Henry C. Lee, Ph.D., New York University

Public Administration

Professor: Jack Werblow, Ph.D., University of Cincinnati.

Associate Professor: Catherine Wiggins, Ph.D., New York University

Assistant Professor: Charles N. Coleman, M.P.A., West Virginia University

Criminal Justice

The criminal justice system is a formal mechanism of control through which social order is maintained. The study of this system is approached in an interdisciplinary manner involving law, the physical sciences and the social sciences. Through the use of both conventional and innovative techniques, including lectures, written assignments, seminars, workshops, internships and independent research and study, an attempt is made to provide students with the opportunity to gain a wide variety of insights and experiences.

There is a full range of career opportunities available in criminal justice at the local, state and national levels. Because of its interdisciplinary approach, the study of criminal justice fills the needs of students seeking careers in teaching, research and law, and of the inservice personnel seeking academic and professional advancement.

The department offers courses from the associate to the master's level. Complete information about the master of science degree is available in the Graduate Catalog.

Undergraduate study of criminal justice concentrates on five major areas of study, law enforcement administration, correctional administration, forensic science, law enforcement science and security management.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" or consult the Co-op Office.

B.S., Criminal Justice

Required Courses

Students earning the B.S. in criminal justice are required to complete at least 121 credit hours including the university core curriculum, specified courses from the common courses for business majors and the common courses for criminal justice majors listed below:

CJ 100 Introduction to Criminal Justice I
CJ 101 Introduction to Criminal Justice II
CJ 102 Criminal Law
CJ 201 Principles of Criminal Investigation
CJ 205 Interpersonal Relations
CJ 215 Introduction to Forensic Science
CJ 217 Criminal Procedures and Evidence I
CJ 218 Criminal Procedures and Evidence II
CJ 311 Criminology
CJ 498 Research Project *or* CJ 501 Criminal Justice Internship

Concentration in Correctional Administration

This concentration is designed to prepare students for careers with federal, state, local and private correctional agencies and institutions. It is concerned with the treatment of offenders, administration, planning and research. The curriculum emphasizes law, social and behavioral sciences and research methodology.

Students earning the B.S. in criminal justice with a concentration in

correctional administration must complete the university core curriculum, a specified selection of courses from the common courses for business majors, the common courses for criminal justice majors listed above, and the following:

CJ 209 Corrective Treatment Programs
CJ 220 Legal Issues in Correction
CJ 301 Group Dynamics in Criminal Justice
CJ 408 Correctional Counseling I
CJ 409 Correctional Counseling II

Concentration in Forensic Science

Forensic science is a broad field in which physical and biological sciences are utilized to analyze and evaluate physical evidence related to matters of law. The aim of the concentration is to provide the appropriate education to men and women in the field of forensic science, as well as to those who are planning careers in forensic sciences. The curriculum is also of value to those in related fields whose professional work requires knowledge of scientific investigation methods.

Students earning a B.S. in criminal justice with a concentration in forensic science must complete 136 credit hours, including the university core curriculum, a specified selection of courses from the common courses for business majors, the common courses for criminal justice majors listed above and the following:

CH 115 General Chemistry
CH 117 General Chemistry Laboratory
BI 121 General Biology I with Lab
BI 122 General Biology II with Lab
CJ 303 Forensic Science Lab I
CJ 304 Forensic Science Lab II

Students in the forensic science concentration also take: CH 116/118, General Chemistry II with Lab; CH 201/203 Organic Chemistry I with Lab; CH 202/204 Organic Chemistry II with Lab; CH 211, Quantitative Analysis; CH 221 Instrumental Analysis; PH 150 General Physics I; PH 250 General Physics II; and one biology elective. It is strongly recommended that students take CH 351, Qualitative Organic Analysis. CJ 415 Crime Scene Investigation and Pattern Evidence and CJ 416 Seminar in Forensic Science may be taken instead of CJ 217/218, Criminal Procedure I and Criminal Procedure II.

Concentration in Law Enforcement Administration

This concentration prepares students for careers in federal, state and local law enforcement agencies, public and private security forces, planning agencies and other related settings. The curriculum focuses on the roles, activities and behaviors of people with regard to maintaining law and order, providing needed services, protecting life and property and planning and research.

Students earning the B.S. in criminal justice with a concentration in law enforcement administration must complete the university core curriculum, a specified selection of courses from the common courses for business majors, the common courses for criminal justice majors listed above, and the following:

CJ 221 Juvenile Justice System
CJ 301 Group Dynamics in Criminal Justice
CJ 333 Police Civil Liability
CJ 400 Criminal Justice Problems Seminar
CJ 402 Police in Society

Concentration in Law Enforcement Science

This concentration is designed to provide an interdisciplinary educational program for those people entering law enforcement science fields, especially investigative work. In addition, it is geared toward enhancing the scientific knowledge of those people now holding investigative positions in various enforcement agencies. The curriculum emphasizes law enforcement, forensic science, natural and physical science and the behavioral sciences.

Students earning the B.S. in criminal justice with a concentration in law enforcement science must complete the university core curriculum, a specified selection from the common courses for business majors, the common courses for criminal justice majors listed above and the following:

CJ 204 Forensic Photography with Lab
CJ 227 Fingerprints with Lab
CJ 303 Forensic Science Lab I
CJ 304 Forensic Science Lab II
CJ 415 Crime Scene Investigation and Pattern Evidence

It is recommended that students in this concentration take CJ 416 Forensic Science Seminar.

Concentration in Security Management

This concentration in security management is designed to provide those entering or now holding administrative or managerial positions in private security the necessary skills and know-how to perform effectively and professionally. The program is interdisciplinary in nature and draws from the areas of criminal justice, forensic science, business administration, industrial engineering and the behavioral sciences.

Students earning the B.S. in criminal justice with a concentration in security management must complete the university core curriculum, a specified selection of courses from the common courses for business majors, the common courses for criminal justice majors listed above, and the following:

CJ 105 Introduction to Security
CJ 203 Security Administration
CJ 226 Industrial Security
CJ 306 Security Problems Seminar
CJ 410 Legal Issues in Private Security

A.S., Criminal Justice

Students completing the first two years of the bachelor of science degree program in criminal justice with the law enforcement administration concentration (61 credit hours) are eligible to receive the associate in science degree. Interested students should contact their adviser.

Minor in Criminal Justice

To minor in criminal justice, students must complete 18 credit hours of criminal justice courses, including those listed below:

CJ 100 Introduction to Criminal Justice I
CJ 101 Introduction to Criminal Justice II

Criminal Justice Certificate Programs

Coordinator: David A. Maxwell, J.D., C.P.P.

The department offers certificates in law enforcement science and security management. Students must complete 18 credit hours of required courses to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Law Enforcement Science Certificate

This certificate is designed to provide the fundamentals of criminal investigation techniques and procedures, particularly for those involved in or planning to enter investigative positions in law enforcement agencies in both the private and public sectors. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

CJ 201 Principles of Criminal Investigation
CJ 215 Introduction to Forensic Science
CJ 227 Fingerprints with Laboratory
CJ 303 Forensic Science Laboratory I
CJ 304 Forensic Science Laboratory II
CJ 415 Crime Scene Investigation and Pattern Evidence

Security Management Certificate

This certificate is a concentrated program of study in management security systems for private business and industry. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

CJ 105 Introduction to Security
CJ 203 Security Administration
CJ 226 Industrial Security
CJ 410 Legal Issues in Private Security
FS 402 Arson Investigation I
SH 100 Safety Organization and Management

Public Administration

The public administration program is designed to prepare students for public service responsibility as government program administrators, civic leaders and managers or private businesses deeply involved in governmental affairs. Stressed are the organization of government services, the behavior of public officials, the manner in which government raises revenue, the nature of public personnel systems, the role of collective bargaining in the public sector, the manner in which decisions on public expenditures are made and public administrative procedures.

An understanding of public administration is also essential for people preparing for careers in law, journalism and every aspect of business.

Public administration training can be easily combined with specialized career programs at the University of New Haven.

Public administration students are strongly encouraged to systematically develop their public speaking, group discussion and writing skills through specialized instruction and as a part of their regular public administration course requirements.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op Office.

B.S., Public Administration

All students earning the B.S. in public administration must complete 121 credit hours including the university core curriculum and the common courses for public administration majors listed below.

Students also are encouraged to pursue one of the concentrations listed later in this section.

Required Courses

PA 101 Introduction to Public Administration
PA 302 Public Administration Systems and Procedures
PA 404 Public Policy Analysis
PA 405 Public Personnel Practices
PA 501 Internship
PA 512 Seminar in Public Administration
EC 314 Public Finance
LA 101 Business Law I

Plus two public administration elective courses.

There are two concentrations within the B.S. in public administration program: city planning and management and health administration.

Concentration in City Planning and Management

Students earning the B.S. in public administration with a concentration in city planning and management must complete the university core curriculum, a specified selection of courses from the common courses for business majors, the common course for public administration majors listed above, and the following:

PA 307 Urban and Regional Management
PA 315 Metropolitan Planning
PA 316 Urban Housing
PS 122 State and Local Government and Politics

Plus a sociology elective course.

Concentration in Health Administration

Students earning the B.S. in public administration with a concentration in health administration must complete the university core curriculum, a specified selection of courses from the common courses for business majors, the common courses for public administration majors listed above, and the following:

PA 305 Institutional Budgeting and Planning
PA 308 Health Care Delivery Systems

(more)

PA 490 Public Health Administration or
PA 491 Public Health and Environmental Law

Plus two social science elective courses.

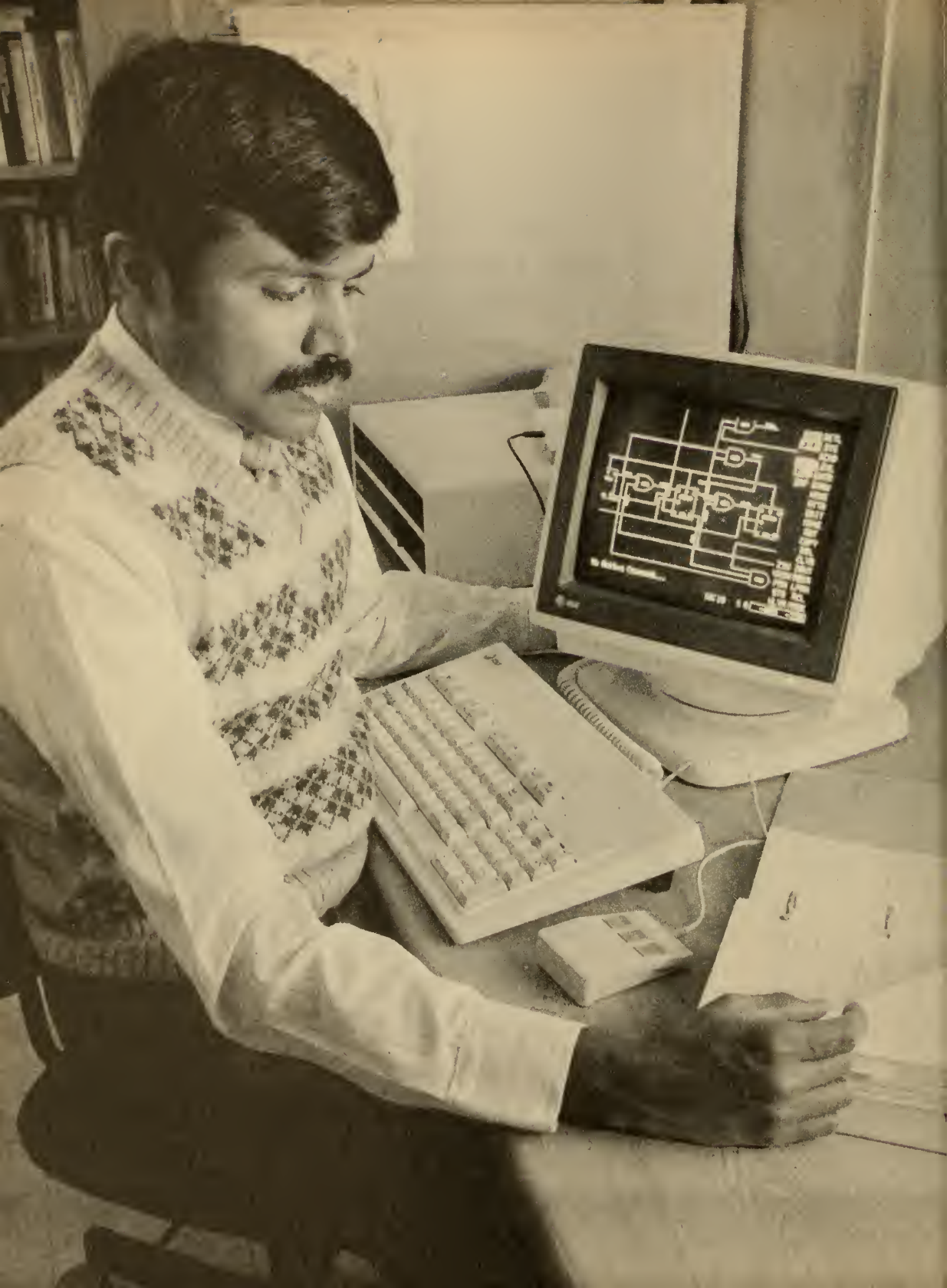
Minor in Public Administration

To obtain a minor in public administration, students must complete these courses:

Required Courses

PA 101 Public Administration
PA 302 Public Administration Systems and Procedures
PA 405 Public Personnel Practices

Plus two additional public administration courses.



SCHOOL OF ENGINEERING

Konstantine C. Lambrakis, Ph.D., dean
B. Badri Saleeby, Ph.D., associate dean

The increasing complexity of technology and the need to match the earth's dwindling resources to the needs of a growing urban society demand more engineers and applied scientists. An engineer capable of meeting the challenges of the future may look forward to a rewarding career.

Because of its broad science and mathematical basis, the typical undergraduate engineering curriculum provides an excellent preparation not only for an engineering career but also for careers or advanced work in other fields such as law, business or medicine.

The School of Engineering at the University of New Haven offers both extensive facilities and well-trained faculty to meet the challenge of this rapidly changing field. Close ties with business and industry are maintained to assess their needs and provide the necessary feedback relative to current professional practices.

Although most of the courses in the curriculum are technological or scientific in nature, particular care is given to the cultural and literary education of the students. Among the required subjects are courses in literature, composition, history and philosophy.

The School of Engineering offers programs leading to the associate in science degree and the bachelor of science degree. At the graduate level the School of Engineering offers programs leading to the master of science degree and the senior professional certificate. Detailed information on these graduate programs is in the Graduate School catalog.

Programs

Bachelor of Science

Chemistry
Chemical Engineering
Civil Engineering
Computer Science
Electrical Engineering
Industrial Engineering
Industrial Technology—Shipbuilding
Materials Technology
Mechanical Engineering

Associate in Science

Chemistry
Civil Engineering
Electrical Engineering
Industrial Engineering
Materials Technology
Mechanical Engineering
Mechanical Technology—Shipbuilding

Master of Science

Computer and Information Science
Electrical Engineering
Environmental Engineering
Industrial Engineering
Mechanical Engineering
Operations Research

Senior Professional Certificate

Computer Applications and Information Systems

Admission Criteria

An applicant for admission to the engineering programs should be a graduate of a secondary school of approved standing and should present 15 acceptable units of secondary school work. These should include four units of English, two units of algebra, one of plane geometry, one half of trigonometry and one unit each of physics and a second science. Deficiencies in English, mathematics and science may be satisfied by summer school attendance, or by an extension of the stated curriculum for one or two semester chosen to fit the student's needs.

Satisfactory placement in the Scholastic Aptitude Test (S.A.T.) in mathematics and English as given by the College Entrance Examination Board, or satisfactory placement in the American College Testing (A.C.T.) program is required.

Choosing a Major

Students in engineering are strongly advised to choose their major by the beginning of the sophomore year. Students who are accepted with academic deficiencies must satisfy those deficiencies before entering the sophomore year.

Those students who are unsure of their major in their sophomore year, or those students who desire to receive formal recognition of the completion of an associate's degree after two years' work, may enroll in the associate in science degree program in engineering.

University Core Curriculum

In addition to school and department requirements, students must fulfill all requirements of the university core curriculum. See the Core Curriculum Section of this catalog for more information.

General Policy of the School of Engineering

The following definitions apply to all degree programs within the School of Engineering.

Free electives

A free elective is any credit course offered by the university for which the student has appropriate preparation. No faculty approval is required. **Note:** In most programs, School of Business courses are accepted *only* as free electives.

Humanities Electives

These core courses are from areas of humanities or social sciences and are meant to bring the engineering student to a better awareness of social responsibilities and related factors in decision-making processes, and to broaden his or her cultural background.

Mathematics Electives

These are courses from the mathematics department at the 300 or higher level, with the current exclusion of M 228 Elementary Statistics, which is offered to students in non-technical degree programs. Faculty advisers should be consulted for recommendations on the most relevant mathematics electives for a student's career objectives.

Technical Electives

Technical electives are upper-level courses directly pertinent to a student's major field of study. These electives must be approved by the student's faculty adviser and may be chosen from engineering school courses. Faculty approval is particularly important to ensure that students meet the math requirements of the Accreditation Board for Engineering and Technology.

Professional Accreditation

The curricula leading to the bachelor's degree in civil, electrical, industrial and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (A.B.E.T).

Common Courses for Engineering Curricula — Freshman Year

Bachelor degree programs for engineering majors contain common requirements for the freshman year of study. The course requirements are listed below:

Engineering Requirements

CH 115 General Chemistry I
CH 117 General Chemistry Laboratory I
CH 116 General Chemistry II
CH 118 General Chemistry Laboratory II
E 105 Composition
E 110 Composition and Literature
ES 107 Introduction to Engineering
CS 102 Introduction to Computers/FORTRAN*
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat and Waves with Laboratory

3 credit hours of a humanities/social science elective

*Civil engineering students substitute ME 101.

Humanities and Social Sciences Requirements

In addition to freshman English and introductory economics (EC133), the following 15 credits are required for all engineering students to satisfy the university core:
3 credits (sociology, political science or psychology)
3 credits (English literature or philosophy)
3 credits (art, music, or theater)
3 credits HS 101 (history)
3 credits selected from E 202, HU 300, HS 306, or an SO, P or PS 300-level or above course.

Department of Chemistry and Chemical Engineering

Chairman: George L. Wheeler, Ph.D.

Professors: Peter Desio, Ph.D., University of New Hampshire (Organometallics, Ring-chain Tautomerism in Orthoacylbenzoic acids); George Wheeler, Jacob Finley Buckman Professor of Chemistry & Chemical Engineering, Ph.D., University of Maryland (Biochemistry of Vision; Solid State Spectroscopy)

Associate Professor: Michael Saliby, Ph.D., SUNY at Binghamton (Inorganic Photochemistry; Synthesis and Spectral Studies in Iridium, Chromium and Rhodium Complexes of Tripodal Amines)

Assistant Professor: Michael A. Collura, Ph.D., Lehigh University (Process design and control; separation processes)

Jacob Finley Buckman Endowed Chair and Scholarships

The Jacob Finley Buckman Endowed Chair of Chemistry and Chemical Engineering was established in 1981 by Mrs. Clarice Buckman of New Haven in memory of her late husband, Jacob Finley Buckman, the co-founder of Enthone Corporation.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables students to combine practical, paid work experience in career fields with their college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Chemistry Club

The department has a chemistry club that is a student affiliate of the American Chemical Society. The club is open to all students, and all chemistry majors are encouraged to join. Club activities include projects, field trips, films, group discussions and social activities.

Chemical Engineering

Chemical engineers apply fundamental scientific principles of chemistry, physics, mathematics and economics to the solution of practical problems. Typically, chemical engineers are engaged in designing, developing and improving processes which convert material and energy resources into new or better products.

Because chemical engineering is the most broadly based of all engineering disciplines, chemical engineers are capable of solving a wide range of technological problems and are highly employable in a wide variety of areas including: manufacturing, chemical processes

industries, petroleum, aerospace and nuclear materials, automation and instrumentation, plastics, textiles, food and pharmaceutical processing, corrosion control, pollution control and abatement, biomedical engineering and many others. Chemical engineering is also an excellent background for careers in patent law or medical research.

B.S., Chemical Engineering

The chemical engineering program is demanding, challenging and requires hard work from all students. But for those who are genuinely interested and committed, the program develops the required depth of knowledge to embark on a satisfying professional career or to enter graduate school. The curriculum in chemical engineering is consistent with the requirements of the American Institute of Chemical Engineers and includes courses in physics, chemistry and mathematics as well as in chemical, civil, electrical, industrial and mechanical engineering. Courses in the humanities and social sciences are integrated into the curriculum to aid in developing the student's social consciousness and to broaden the educational background. In the freshman year, chemical engineering majors take the same course of study as do all other engineering students. The first chemical engineering courses are taken in the sophomore year, with increased focus during the last two years. In the senior year, students are involved in comprehensive chemical engineering design projects, and may choose four technical elective courses. The electives in the curriculum allow students to design programs that fulfill individual needs and interest.

Required Courses

Sophomore

CH 201	Organic Chemistry I
CH 202	Organic Chemistry II
CH 203	Organic Chemistry Laboratory I
CH 204	Organic Chemistry Laboratory II
CM 201	Fundamentals of Chemical Engineering I
CM 202	Fundamentals of Chemical Engineering II
EE 211	Fundamentals of Electrical Engineering
M 203	Calculus III
M 204	Differential Equations
ME 204	Dynamics
ME 301	Thermodynamics I
PH 205	Electromagnetism/Optics with Laboratory

Junior

CH 331	Physical Chemistry I
CH 333	Physical Chemistry I Laboratory
CH 332	Physical Chemistry II
CH 334	Physical Chemistry II Laboratory
CM 301	Transport Phenomena Analysis
CM 310	Transport Operations I with Laboratory
CM 311	Chemical Engineering Thermodynamics
CM 321	Reaction Kinetics/Reactor Design
EC 133	Principles of Economics
IE 204	Engineering Economics
M 338	Numerical Analysis I

Senior

CM 401	Mass Transfer Operations
CM 410	Transport Operations II with Laboratory
CM 420	Process Design Principles

CM 421 Plant and Process Design
CM 431 Process Dynamics and Control with Laboratory
ES 415 Professional Engineering Seminar

Elective: Literature or Philosophy
Elective: Art/Music/Theatre
Elective: Humanities/Social Science
Plus 6 credit hours of technical electives

Chemistry

Chemists are concerned with the structure and analysis of matter and the changes that matter undergoes. Today's chemists are solving chemical problems and developing new substances with the increasing use of laboratory instruments. Many of these instruments are interfaced with computers for rapid data analysis and display.

Careers for chemists in today's market include the rapidly developing fields of instrumentation, computers, energy, environment, forensics, medicine, safety and health, pharmaceuticals, product and equipment development, chemical engineering, plastics and polymers, synthetic fibers, industrial chemistry, technical sales and services and management.

The B.S. in chemistry program consists of all the courses recommended by the American Chemical Society and provides a rigorous background well-suited for those students who will pursue graduate studies in chemistry. The program is also highly recommended for pre-medical students. The program contains six technical elective courses which allow the student to develop a concentration in a related field such as biology, forensic acience, computer science or environmental studies.

The B.A. program in chemistry appears in this catalog under the School of Arts and Sciences.

B.S., Chemistry

Required Courses

Students majoring in chemistry must complete the following courses:

Freshman

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CS 102 Introduction to Programming/FORTRAN
E 105 Composition
E 110 Composition and Literature
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat and Waves with Laboratory

Sophomore

CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory

CS 224 Advanced Programming/FORTRAN
M 203 Calculus III
PH 205 Electromagnetism and Optics with Laboratory

Plus Social Science Elective I
HS 101 Foundations of Western World

Junior
CH 331 Physical Chemistry I
CH 333 Physical Chemistry I Laboratory
CH 332 Physical Chemistry II
CH 334 Physical Chemistry II Laboratory
CH 351 Qualitative Organic Analysis with Laboratory

Plus 2 technical electives
1 advanced chemistry elective
HU 300 Nature of Science
Elective: Literature of Philosophy
Elective: Art/Music/Theatre
Social Science Elective II

Senior
CH 411 Chemical Literature
CH 412 Seminar
CH 451 Thesis
CH 501 Advanced Organic Chemistry I
CH 521 Advanced Inorganic Chemistry I
CH 523 Advanced Inorganic Chemistry Laboratory
CH 599 Independent Study

Plus Elective: Math/Computer/Biology
4 technical electives

B.A., Chemistry

The B.A. in chemistry program appears in the School of Arts and Sciences section of this catalog.

A.S., Chemistry

Students who wish to earn an associate degree in chemistry must take a total of 64-66 credit hours including the courses listed below:

Required Courses

Freshman
E 105 Composition
E 110 Composition and Literature
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
M 117 Calculus I
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Plus 3 credit hours of a social science elective

Sophomore

CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory
CS 102 Introduction to Computers/FORTRAN
M 118 Calculus II
M 203 Calculus III

Plus 6 credit hours of technical electives

Minor in Chemistry

Students minoring in chemistry must complete 23-24 credit hours including the courses listed below:

Required Courses

CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CH 201 Organic Chemistry I
CH 202 Organic Chemistry II
CH 203 Organic Chemistry Laboratory I
CH 204 Organic Chemistry Laboratory II
CH 211 Quantitative Analysis with Laboratory
CH 221 Instrumental Methods of Analysis with Laboratory

Department of Civil and Environmental Engineering

Chairman: David J. Wall, P.E., Ph.D.

Professors: George R. Carson, M.S.C.E., Columbia University; Ross M. Lanius, Jr., M.S.C.E., University of Connecticut, M.S.C.I.S., University of New Haven; John C. Martin, M.E., Yale University; M. Hamdy Bechir, Sc.D., Massachusetts Institute of Technology

Associate Professor: David J. Wall, Ph.D., University of Pittsburgh

Assistant Professor: Gregory P. Broderick, Ph.D., University of Texas

Civil engineering deals with planning, designing and constructing facilities serving humanity. These services are diversified and include the reduction of air and water pollution; transportation of people, materials and power; renewal of older sections of cities; development of new communities and development of water supply and power lines, railroads and tunnels; all with the least disturbance to the environment.

A civil engineer must have a solid background in mathematics, basic science, communication skills, engineering science, engineering design and humanities. The curriculum is designed to meet these basic criteria

and is accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.).

The first two years are essentially common to all engineering disciplines and include mathematics, basic sciences and communication skills. Students are expected to complete the requirements for the freshman year before entering junior year courses.

The junior year is common to all civil engineering students and provides a basic background in engineering science. In the senior year, concentrated engineering design courses are available in the environmental, structural, surveying and transportation fields. Through the senior project and independent study, an in-depth study of a specialized field is available. Humanities courses are included at all levels.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables students to combine practical, paid work experience in career fields with their college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapter of the American Society of Civil Engineers

There is an active student chapter of the American Society of Civil Engineers at the university. The chapter sponsors technical lectures, field trips and social activities.

Chi Epsilon

Students with high academic records are nominated annually for membership in Chi Epsilon, the national honor society for civil engineers.

B.S., Civil Engineering

Students must complete a total of 136 credit hours for a degree in civil engineering including the engineering requirements for th e freshman year listed earlier in this section and the university core requirements. They are also expected to earn a cumulative quality point ratio of no less than 2.0 in all civil engineering courses and technical electives. The required courses for the final three years of the program are listed below:

Required Courses

Sophomore

CE 201 Statics
CE 202 Strength of Materials
CE 206 Engineering Geology
CS 102 Introduction to Computers/FORTRAN
IE 204 Engineering Economics
M 203 Calculus III
M 204 Differential Equations
ME 204 Dynamics
PH 205 Electromagnetism and Optics with Laboratory
Plus Humanities/social science electives

Junior

CE 203 Elementary Surveying
CE 301 Transportation Engineering
CE 302 Building Construction

CE 304 Soil Mechanics
CE 306 Hydraulics
CE 312 Structural Analysis
CE 315 Environmental Engineering and Sanitation
CE 317 Structural Design Fundamentals
CE 323 Mechanics and Structures Laboratory
CE 325 Project Planning and Schedule
M 311 Linear Algebra *or* M 371 Probability and Statistics I
Plus Humanities/social science electives

Senior

CE 327 Soil Mechanics and Concrete Laboratory
CE 328 Hydraulics and Environmental Laboratory
CE 407 Professionalism and Ethical Practice of Engineering
CE 501 Senior Project
EE 211 Principles of Electrical Engineering I
ME 301 Thermodynamics I
Plus Humanities/social science electives

Plus 9 credit hours of civil engineering technical electives of which 6 credits must be civil engineering design courses

A.S., Civil Engineering

Students who wish to earn an associate degree in civil engineering must complete a total of 60-61 credit hours including the courses listed below:

Freshman

E 105 Composition
E 110 Composition and Literature
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
CS 102 Introduction to Computers/FORTRAN
ES 107 Introduction to Engineering
M 117 Calculus I
ME 101 Engineering Graphics
PH 150 Mechanics, Heat and Waves with Laboratory

Sophomore

CE 201 Statics
CE 202 Strength of Materials
CE 203 Elementary Surveying
CE 301 Transportation Engineering
CE 315 Environmental Engineering and Sanitation
M 118 Calculus II
PH 205 Electromagnetism and Optics with Laboratory
plus any two of the following courses:
CE 302 Building Construction
CE 325 Project Planning and Scheduling
IE 204 Engineering Economics
M 203 Calculus III

Minor in Civil Engineering

Students are required to complete 18 credit hours of civil engineering courses for the minor. With the approval of the chairman, engineering majors may substitute other civil engineering courses for a minor.

Required Courses

Six courses are to be taken from the following list:

CE 201 Statics
CE 202 Strength of Materials
CE 203 Elementary Surveying
CE 301 Transportation Engineering
CE 302 Building Construction
CE 306 Hydraulics
CE 315 Environmental Engineering and Sanitation
CE 316 Code Administration
CE 407 Professionalism and Ethical Practice of Engineering

Department of Electrical and Computer Engineering

Chairman: Daniel C. O'Keefe, Ph.D.

Professors: Gerald J. Kirwin, Ph.D., Syracuse University; Daniel C. O'Keefe, Ph.D., Worcester Polytechnic Institute, Kantilal K. Surti, Ph.D., University of Connecticut

Associate Professors: Andrew J. Fish, Jr., Ph.D., University of Connecticut; Herbert J. Kump, M.S., Syracuse University

Assistant Professors: Bouzid Aliane, Ph.D., Polytechnic Institute of New York; Ali M. Golbazi, Ph.D., Wayne State University; Bijan Karimi, Ph.D., Oklahoma State University; Mathivanan Packiam, Ph.D., University of Iowa

Electrical engineers are concerned with energy and signals. They apply fundamental principles to the design of systems and devices for the generation, transmission and control of energy. Their activities include the coding of information into electrical signals and the processing of these signals in various computer systems.

The domain of electrical engineering encompasses such familiar and practical devices as power systems, radio and television communications apparatus, computers and automatic control systems.

The techniques and design philosophies of electrical engineering have had extraordinary influence on the development and evolution of the digital computer. All electrical engineering students are required to enroll in several courses from the computer area and additional course work may be undertaken on an elective basis.

An electrical engineer may serve in many professional capacities all of which require a thorough understanding of the scientific principles that govern electrical phenomena. As designers, electrical engineers use existing devices and techniques to meet the challenges of industry for more efficient, precise or reliable operations. These activities often lead to new concepts and techniques and sometimes to the discovery of new phenomena. The technical complexity of the services or products provided by many companies requires personnel with appropriate educational backgrounds. As a result, electrical engineers also find employment opportunities in sales, customer service and maintenance.

An undergraduate program in electrical engineering must prepare the student for a career in a field where new developments occur rapidly. Therefore, it is imperative that a program of studies in engineering be heavily concentrated in the basic principles of the discipline.

At the University of New Haven, electrical engineering students divide their efforts between the tasks of learning engineering analysis methods and the techniques of electrical system design. Examples of modern applications associated with practical analysis and design problems are presented in lecture and laboratory courses. Because the origins of engineering methods are based in the sciences of chemistry, mathematics and physics, these subjects are an important part of the program of studies.

Electrical engineering students have direct assess to the department laboratories. The department has recently expanded its lab facilities to include state-of-the-art instruments in various disciplines, including communication systems, control systems, digital systems and power systems. The microprocessor laboratory is linked to the university's computing network so that fast prototyping and testing of software is possible. The department also has several powerful microcomputers configured as stand alone workstations.

Electrical engineering students should possess good analytical abilities including sound mathematical competence. They should also have a natural curiosity about the multitude of technical devices encountered in everyday life, a willingness to learn the principles that make these devices possible and a desire to create new devices and methods of solving problems.

The Co-op Program

The electrical and computer engineering department participates in the cooperative education programs which permit students to combine periods of professional work experience with their academic studies. More details of this plan may be found in the section of this catalog entitled "The Co-op Program" in the School of Professional Studies and Continuing Education.

Student Societies

The department of electrical and computer engineering sponsors a student section of the Institute of Electrical and Electronics Engineers. This organization supports visiting lecturers and field trips to surrounding industrial sites. Eta Kappa Nu, the national honorary society for electrical engineers, has the Zeta Rho Chapter at the university to honor superior students and to encourage high scholastic achievements.

B.S., Electrical Engineering

Students must complete a total of 131 credit hours for a degree in electrical engineering including the requirements for the freshman year listed earlier in this section. Humanities or social science electives must be selected so as to fulfill the core curriculum requirements of the university.

Technical elective courses in the BSEE program must be selected from upper level offerings (third or fourth year) under the guidance and approval of the student's academic adviser. At least three must be electrical and computer engineering departmental courses.

This component of the curriculum is identified with the career interests of the student and provides the opportunity to concentrate some study in one of the several branches within the discipline. The department offers a variety of advanced courses in electronic design,

digital/computer systems, communications engineering, electromagnetic waves, control systems and fiber optics.

Required Courses

Sophomore

EE 201 Basic Circuits I
EE 202 Basic Circuits II
EE 253 Electrical Engineering Laboratory
EE 255 Digital Systems I
EC 133 Principles of Economics I
M 203 Calculus III
M 204 Differential Equations
ME 204 Dynamics
PH 205 Electromagnetism and Optics with Laboratory
Plus Humanities and social science electives.

Junior

EE 301 Network Analysis
EE 302 Systems Analysis
EE 347 Electronics I
EE 348 Electronics II
EE 349 Electrical Engineering Laboratory II
EE 371 Computer Engineering
ME 301 Thermodynamics I

Plus 1 mathematics elective
1 electrical engineering technical elective*
Humanities/social science electives

Senior

EE 420 Random Signal Analysis
EE 446 Digital Electronics
EE 457 Electrical Engineering Laboratory III
EE 458 Electrical Engineering Design Laboratory
EE 461 Electromagnetic Theory
IE 204 Engineering Economics

Plus 3 electrical engineering technical electives*
Humanities/social science electives

*To ensure that students meet the requirements of the Accreditation Board for Engineering and Technology (A.B.E.T.), technical electives must be chosen in consultation with the student's adviser.

A.S., Electrical Engineering

Upon successful completion of 63-64 credits of designated courses, including all of the courses in the freshman year, a student may be granted the associate's degree in electrical engineering. All of these courses are also a part of the B.S. in electrical engineering requirements and most students continue their enrollment after receiving their A.S.

Minor in Electrical Engineering

A student may obtain a minor in electrical engineering by completing the following courses:

EE 201 Basic Circuits I
EE 202 Basic Circuits II
EE 253 Electrical Engineering Lab I

EE 255 Digital Systems I
EE 347 Electronics I
EE 461 Electromagnetic Theory

The student will also fulfill the prerequisites for these courses.
Students contemplating either a minor or an associate's degree should consult with the department chairman early in their program.

Department of Industrial Engineering and Computer Science

Chairman: Ira H. Kleinfeld, Eng.Sc.D.

Professors: Edward T. George, D.Eng., Yale University; William S. Gere, Ph.D., Carnegie-Mellon University; Roger G. Frey, Ph.D., Yale University; Ira H. Kleinfeld, Eng.Sc.D., Columbia University; Richard A. Mann, Ph.D., University of Wisconsin; Alexis N. Sommers, Ph.D., Purdue University; Ronald Wentworth, Ph.D., Purdue University

Associate Professors: Francis J. Costello, M.S.M.E., Newark College of Engineering; Alice Fischer, Ph.D., Harvard University; Norman Hosay, Ph.D., University of Wisconsin; M. Ali Montazer, Ph.D., SUNY at Buffalo; Howard Okrent, Ph.D., Massachusetts Institute of Technology

Assistant Professor: William Adams, M.S., University of New Haven; Bih-Lin Cho, Ph.D., University of Missouri; Matthew Sanders, Ph.D., Texas Technical University

Instructors: Teraneh Seyed, M.S., Oklahoma State University; Gary Walters, M.S., University of New Haven

Senior Lecturer: Priscilla H. Griscom, M.S., University of New Haven

The department of industrial engineering and computer science offers two distinct baccalaureate degree programs: a B.S. in industrial engineering; and a B.S. in computer science. The objectives and career opportunities associated with each are described below.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables students to combine practical, paid work experience in career fields with their college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapters

Students are eligible to join, at a reduced rate, the student chapter of the Institute of Industrial Engineers. It is affiliated with a local senior chapter, enabling students to develop a sense of the practice of the profession. Or, one may choose membership in the Student Chapter of the Association of Computing Machinery.

B.S., Industrial Engineering

Industrial engineers determine the most effective methods of using the basic factors of production—manpower, machinery and materials. Expertise provided by industrial engineers will be increasingly important as our industries struggle to improve productivity and competitiveness in manufacturing, service and trade. Industrial engineers are needed in manufacturing, in service industries such as hospitals and utilities, in trade and commerce such as banks and insurance companies, and in consulting firms. In addition, industrial engineers are among the most upwardly mobile of those in the engineering profession, by virtue of their training and experience. Many industrial engineers have attained top management positions in a variety of industries.

The department's program in industrial engineering gives students a broad engineering background during the first two years. In the last two years the required courses in industrial engineering are taken in addition to electives which enable the student to tailor one's studies to his own interests such as operations research, systems analysis, manufacturing systems, or computer science. This program is the only one of its kind offered in Connecticut and it is accredited by the Accreditation Board for Engineering and Technology (A.B.E.T.).

Students have the opportunity to use the laboratories in human factors, artificial intelligence, robotics, computer vision and manufacturing and the university's computer center.

Required Courses

Students earning the B.S. in industrial engineering must complete 130 credit hours including the university core curriculum. These courses must include the freshman requirements listed earlier in this section, 41 credit hours in industrial engineering courses and 6 credit hours of technical electives chosen in consultation with the student's adviser. Technical electives are generally junior- or senior-level courses in industrial engineering.

Sophomore

CE 201 Statics
CS 102 Introduction to Computers/FORTRAN
CS 224 Advanced Programming/FORTRAN
EC 133 Principles of Economics
IE 204 Engineering Economics
IE 214 Engineering Management
M 203 Calculus III
M 204 Differential Equations
ME 204 Dynamics
PH 205 Electromagnetism and Optics with Laboratory

Junior

CE 202 Strength of Materials
EE 211 Principles of Electrical Engineering I
IE 303 Cost Control
IE 304 Production Control
IE 343 Work Design
IE 346 Probability Analysis
IE 347 Statistical Analysis
IE 348 Manufacturing Processes
Plus English Literature or Philosophy/Social Science elective

Senior

HU 300 Humanities—Nature of Science
ES 415 Professional Engineering Seminar
IE 344 Human Factors Engineering
IE 435 Simulation
IE 436 Quality Control
IE 443 Facilities Planning
IE 402 Operations Research

Plus 2 technical electives, EE 212 Principles of Electrical Engineering II *or* MT 200 Engineering Materials, Fine Arts Elective

B.S., Computer Science

This program follows the Association for Computing Machinery guidelines for an undergraduate computer science degree. It is intended to prepare students either for graduate school in computer science or for a job as a systems or applications programmer. Eventually graduates can expect to hold positions such as software engineer, system designer, free lance software consultant and programming manager.

The computer science program includes instruction in several programming languages, a strong base in mathematics, and intermediate courses in methods and systems. Advanced courses in various areas may be elected. The student will choose some area of high interest outside of the computer science department and pursue a specialization in that field. These courses must be approved by his or her adviser and are designated as specialization electives.

Required Courses

A total of 129 credit hours including the university core curriculum is required for the bachelor of science in computer science. Because this is not a typical engineering program, the freshman year curriculum is different from the other engineering disciplines, and is included below.

Freshman

CS 106 Introduction to Pascal
CS 226 Data Structures and Algorithms I
M 117 Calculus I
M 118 Calculus II
PH 150 Mechanics, Heat and Waves
E 105 Composition
E 110 Composition and Literature
HS 101 Foundations of the Western World

Plus Social Science Elective
Fine Arts/Music/Theater elective

Sophomore

CS 230 Introduction to Systems Programming/C & UNIX
CS 234 Machine Organization/Assembly Language
CS 237 Data Structures and Algorithms II
M 203 Calculus III
M 270 Discrete Structures
PH 205 Electricity, Heat & Light
IE 204 Engineering Economics
PL 210 Symbolic Logic

Plus Social Science Elective
Specialization Elective 1
Specialization Elective 2

Junior

CS 228	Intensive FORTRAN
CS 310	Computing Theory
CS 320	Operating Systems
CS 337	Introduction to Data Base Systems
CS 338	Structure of Programming Languages
IE 346	Probability Analysis
IE 347	Statistical Analysis
	Restricted Elective 1
HU 300	The Nature of Science

Plus Literature *or* Philosophy Elective
Specialization Elective 3

Senior

CS 437	Data Base Design
CS 420	Software Design & Development
CS	Elective
CS	Elective
CS	Elective
EE 255	Digital Systems I
	Restricted Elective 2
	Restricted Elective 3
E 225	Technical Writing and Presentations
ES 415	Professional Engineering Seminar
	Specialization Elective 4

A.S., Computer Science

This two-year associate's program is designed for the student who wishes an earlier entrance into the job market. All credits can be applied toward the B.S. in C.S. degree at a later date.

A.S., Industrial Engineering

This two-year associate degree program is designed for the student who wishes an earlier entrance to the job market. All credits can be applied toward the B.S. in industrial engineering at a later date.

Minor in Industrial Engineering

Engineering students may minor in industrial engineering by completing 18 credit hours of industrial engineering courses. The required courses for the minor are listed below.

Required Courses

IE 204	Engineering Economics
IE 303	Cost Control
IE 304	Production Control
IE 343	Work Design
IE 443	Facilities Planning
IE 402	Operations Research

Minor in Computer Science

Required Courses

CS 106	Introduction to Programming/Pascal
CS 226	Data Structures and Algorithms I
CS 228	Intensive FORTRAN
CS 230	Introduction to Systems Programming/C & UNIX
CS 237	Data Structures and Algorithms II
CS 320	Operating Systems
CS 334	Machine Organization and Assembly Language

Department of Mechanical Engineering

Chairman: John Sarris, Ph.D.

Professors: Konstantine C. Lambrakis, Ph.D., Rensselaer Polytechnic Institute; Stephen M. Ross, Ph.D., The Johns Hopkins University; B. Badri Saleeby, Ph.D., Northwestern University; John Sarris, Ph.D., Tufts University; Richard M. Stanley, Ph.D., Yale University

Associate Professor: Oleg Faigel, Ph.D., Moscow Polytechnic Institute

Assistant Professor: Carl Barratt, Ph.D., Cambridge University; Ismail Orabi, Ph.D., Clarkson University

Senior Lecturer: M.N. Parthasarathi, Ph.D., University of Illinois

The department of mechanical engineering has a long history of success in producing outstanding graduates in the field of thermal sciences, fluids and design. To ensure that graduates will continue to distinguish themselves in either graduate school or the practice of engineering, the department places emphasis on the scientific foundation of the curriculum and on the breadth and scope of the professional courses. Implicit in this emphasis is a demand for a high level of maturity and flexibility on the part of the student.

The rapid advances in science and technology require that mechanical engineers, as generalists among engineers, not only have a thorough understanding of basic scientific principles, but also have an appreciation of human values and an awareness of the effects of their contribution to the social, professional, economic and ecological climate in which they work.

Several options for concentration at the senior year are available for a student to pursue. At that level, restricted elective courses may be selected, with the help of the student's faculty adviser, which offer the opportunity for further learning in areas such as fluids, energy, design, heat transfer, numerical analysis and computers, aerospace sciences and control systems.

Exceptional students having an overall average of 3.50 or better may join the Delta Zeta Chapter of Pi Tau Sigma honorary fraternity which provides the opportunity for closer relations with the faculty and other prominent individuals in the field for the purpose of further professional development, involvement in faculty research and varied social and intellectual activities.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables students to combine practical, paid work experience in career fields with their college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

Student Chapter of A.S.M.E.

Membership in the American Society of Mechanical Engineers student section is open to all mechanical engineering students of good standing

and provides the opportunity for field trips to local industrial establishments, social activities and reading of interesting professional literature.

B.S., Mechanical Engineering

Required Courses

Students earning the bachelor of science in mechanical engineering are required to complete 134 credit hours including the university core curriculum. Requirements include the freshman year courses listed earlier in this section and those listed below:

Sophomore

CE 201 Statics
CE 202 Strength of Materials I
M 203 Calculus III
M 204 Differential Equations
ME 101 Engineering Graphics
ME 204 Dynamics
ME 215 Instrumentation Laboratory
MT 200 Engineering Materials
PH 205 Electromagnetism and Optics with Laboratory

Plus 6 credit hours of humanities electives

Junior

EE 201 Basic Circuits I
EE 202 Basic Circuits II
ME 301 Thermodynamics I
ME 302 Thermodynamics II
ME 307 Strength of Materials II
ME 311 Machine Elements
ME 312 Mechanical Design
ME 315 Mechanics Laboratory
ME 344 Mechanics of Vibration

Plus 3 credit hours of a mathematics elective (300 or higher level).
3 credit hours of a social science elective

Senior

EC 133 Principles of Economics I
ES 415 Professional Engineering Seminar
IE 204 Engineering Economics
ME 404 Heat and Mass Transfer
ME 415 Thermo/Fluids Laboratory
ME 421 Fluid Mechanics
ME 422 Gas Dynamics
ME 425 Senior Design Project

Plus 3 credit hours of a science elective (200 or higher level course in physics, chemistry or biology)
6 credit hours of technical electives*
3 credit hours of humanities/social science elective

*To ensure that students meet the math requirements of the Accreditation Board for Engineering and Technology (A.B.E.T.), technical electives must be chosen in consultation with the student's adviser.

B.S., Materials Technology

Director: M.N. Parthasarathi, Ph.D.

The performance of virtually every electrical, mechanical and structural device is limited ultimately by the materials from which it is made. The materials engineer is the expert on materials selection who must weigh the relative merits of metals against plastics and specify material for everything from ceramic magnets to aerospace composite fiber materials. The materials engineer is also the controller of materials processing during manufacture. This might include such diverse specialities as powder metallurgy, plastic extrusion, metal heat treatment and vapor deposition, to name but a few fabrication techniques.

The bachelor of science degree program in materials technology provides a broad core curriculum to develop an understanding of the fundamental principles common to all materials. It also incorporates elective courses to enable the student to specialize in a particular materials technology field.

Required Courses

Students earning the bachelor of science in materials technology are required to complete 124 credit hours, including the university core curriculum and those courses listed below:

CE 201 Statics
CE 202 Strength of Materials I
CH 115 General Chemistry I
CH 116 General Chemistry II
CH 117 General Chemistry Laboratory I
CH 118 General Chemistry Laboratory II
EC 133 Principles of Economics I
EE 211 Principles of Electrical Engineering I
ES 107 Introduction to Engineering
HS 101 Foundations of the Western World
M 115 Pre-Calculus Mathematics
M 117 Calculus I
M 118 Calculus II
ME 204 Dynamics
ME 301 Thermodynamics I
MT 219 Physical Metallurgy
MT 304 Mechanical Behavior of Materials
MT 310 Materials Laboratory
MT 342 Steels and their Heat Treatment
MT 500 Research Project
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory

Choice of CS 102 Introduction to Computers/FORTRAN *or* ME 101 Engineering Graphics.

Plus 12 credit hours of materials electives
21 credit hours of technical electives
3 credit hours of a free elective

A.S., Mechanical Engineering

The associate degree in mechanical engineering is not designed to be a terminal degree. It simply provides formal evidence that the student has completed about one-half of the bachelor's program. Students wishing to earn an associate degree in mechanical engineering must complete 60-61 credit hours, corresponding to the courses listed below:

Freshman

E 105	Composition
E 110	Composition and Literature
ES 107	Introduction to Engineering
CH 115	General Chemistry I
CH 116	General Chemistry II
CH 117	General Chemistry Laboratory I
CH 118	General Chemistry Laboratory II
CS 102	Introduction to Computers/FORTRAN
M 117	Calculus I
ME 101	Engineering Graphics
PH 150	Mechanics, Heat and Waves with Laboratory

Sophomore

CE 201	Statics
CE 202	Strength of Materials I
M 118	Calculus II
ME 204	Dynamics
ME 301	Thermodynamics I
MT 200	Engineering Materials
PH 205	Electromagnetism and Optics with Laboratory

Plus any two of the following courses:

IE 204	Engineering Economics
M 203	Calculus III
ME 302	Thermodynamics II
ME 307	Strength of Materials II
ME 311	Machine Elements

A.S., Materials Technology

The associate degree in materials technology is not designed to be a terminal degree. It simply provides formal evidence that the student has completed about one-half of the bachelor's program. Students wishing to earn an associate degree in materials technology must complete 64 credit hours, corresponding to the following courses:

E 105	Composition
E 110	Composition and Literature
ES 107	Introduction to Engineering
CE 201	Statics
CE 202	Strength of Materials I
CH 115	General Chemistry I
CH 116	General Chemistry II
CH 117	General Chemistry Laboratory I
CH 118	General Chemistry Laboratory II
CS 102	Introduction to Computers/FORTRAN *or*
M 115	Pre-Calculus Mathematics
M 117	Calculus I
M 118	Calculus II
ME 101	Engineering Graphics
ME 204	Dynamics
ME 301	Thermodynamics I
MT 219	Physical Metallurgy

MT 310 Materials Laboratory
PH 150 Mechanics, Heat and Waves with Laboratory
PH 205 Electromagnetism and Optics with Laboratory
Plus any two of the following courses:
EE 211 Principles of Electrical Engineering
MT 304 Mechanical Behavior of Materials
MT 331 Nonferrous Metallurgy
MT 342 Steels and their Heat Treatment

Shipbuilding Technologies
(UNH in Southeastern Connecticut)

Director: B. Badri Saleeby, Ph.D.

Program Coordinator: Oliver H. Porter, Assistant Professor

Two programs of continuing education in shipbuilding, designed specifically for shipyard workers are available on a part-time basis at the UNH/SE Connecticut facility. These programs are:

A.S. Mechanical Technology: Shipbuilding
B.S. Industrial Technology: Shipbuilding

The shipbuilding industry is of strategic national importance and has lately been undergoing dramatic changes under the pressures of international competition and newly emerging production technologies and management approaches. The degree programs listed above are intended to increase effectiveness and level of awareness of the job and to facilitate career advancement.

The programs are derived from more traditional studies in mechanical and industrial engineering and include topics in naval architecture, marine engineering and shipyard management.

Students admitted into the program are, for the most part, shipyard workers who either have acquired or are in the midst of acquiring skills of a particular trade such as welding, pipefitting, sheet-metal forming, rigging, tool-making or drafting. For these, the program provides an opportunity for job related academic advancement.

A.S., Mechanical Technology: Shipbuilding

Students earning the A.S. degree must complete 60-67 credit hours including the courses listed below:

SB 101 Introduction to Shipbuilding
SB 102 Basic Ship Stability
SB 201 Elements of Ship Propulsion

Plus 1 additional shipbuilding course
9 credits in general engineering courses
12 credits in technical/management electives
4-11 credits in mathematics (depending on math placement)
14 credits in science
9 credits in English and social science

A.S. degree students can choose their electives so as to develop a program emphasis which leads to engineering studies (transferring at the A.S. level into mechanical, industrial or other branches of engineering study), to business studies, or to continuing shipbuilding studies.

B.S., Industrial Technology: Shipbuilding

The B.S. degree program emphasizes the large scale production management of ships and submarines. Though some A.S. shipbuilding graduates may transfer into engineering or business programs, many will find the B.S. shipbuilding program to be the most appropriate continuation of their studies. The B.S. level program builds upon the A.S. program, advancing the same career continuing education purposes (increased job responsibility, skills development and upgrade, academic status, career mobility.)

The program consists of 68 credit hours of study in addition to the A.S. program requirements. These additional credits include coursework in industrial management, continued math and engineering science studies, university core humanities requirements, and 15 restricted elective credits chosen from scientific, management, or engineering subjects related to shipbuilding.

Transfer Credit

Students may receive credit for up to 30 credit hours of appropriate and satisfactory course work completed at any accredited college or university.

Further Information

Detailed program requirements and schedules, as well as individual advisement are available at the UNH/SE Connecticut offices—University of New Haven; 224 Eastern Point Road; Groton, Connecticut 06340. Telephone: 449-8500, 446-2082, 932-7387, 932-7172.

The Mandarin
HOTEL VICTORIA
ROMA
PASSPORT
United States
of America
Indonesia
Griswold

SCHOOL OF HOTEL, RESTAURANT AND TOURISM ADMINISTRATION

James F. Downey, Ph.D., dean

The School of Hotel, Restaurant and Tourism Administration serves the feeding, lodging, tourism, health care and recreational industries. Our graduates furnish the managerial talent needed by hotels, motor inns, resorts, health care institutions, private clubs, restaurants and travel facilities. Professional management is absolutely necessary to meet the increasing governmental, financial and operational complexities of the industry.

An explosive rate of expansion is predicted, both nationally and internationally, for hospitality enterprises during the coming decade. Virtually all nations are looking for American talents and know-how in hotel/motel, food service and tourism operations. These conditions generate a great demand for hospitality management graduates with motivation, experience and education, who can move with the tide and start climbing the career ladders in the hospitality industry.

Hotel, food service, health care and travel professionals have careers that are challenging and rewarding. Job opportunities range from managing small restaurants to directing large hotel and resort complexes, with employment possibilities in the U.S. and abroad, from small towns to major cities and from seashore to ski country.

Programs

Bachelor of Science
Hotel and Restaurant Management
Tourism and Travel Administration
General Dietetics

Associate Degree
Hotel and Restaurant Management
Tourism and Travel Administration
Dietetic Technology

Certificate Programs
Hotel and Restaurant Management
Tourism and Travel Administration
Club Management
Casino Management
Culinary Arts

Master of Business Administration
Hotel and Restaurant Management Concentration
Tourism and Travel Concentration

Senior Professional Certificates
Hotel and Restaurant Management
Tourism and Travel Administration

Supervised Field Experience

Because of the unique nature of the hospitality industry and the diverse exposure to hands-on experience that is highly recommended by industry leaders, the student will be required to complete a total of 500 hours of field experience for the associate degree, and 1,000 to 1,200 hours for the bachelor's degree. See the course descriptions for HR 215, HR 317, HR 419 and HR 521 for specific requirements and assignments.

The Co-op Program

The school participates in the cooperative education program, a unique educational strategy that results in a planned, integrated program of work and study.

Co-op affords the student the opportunity of seeing the practical application of classroom theory to the world of work, of sampling career possibilities, and of gaining valuable work experience before graduation. Currently, the school participates in cooperative education programs with major local and national hospitality organizations including Walt Disney World, Marriott, Hyatt and Sheraton, among many others. For further details, the student may consult the cooperative education director or the faculty Co-op adviser in the school.

Hotel/Restaurant Society

The purpose and functions of the Hotel/Restaurant Society are: to promote and develop professionalism in the hospitality industry; to provide special services to clientele in order to support club operations and professional functions; to attend national conferences, expositions, hotel/restaurant shows and seminars, and to provide a means of fellowship and camaraderie among students enrolled in hospitality programs. Students are urged to become members of the club and participate in the numerous social, academic and catering functions throughout the year.

Travel Club

Established as a means of actively promoting tourism, the Travel Club provides a forum for interested tourism and travel administration majors. Members attend tourism conventions, plan social functions, host educational seminars and explore career possibilities by meeting with prominent travel professionals from various areas within the industry. All tourism and travel administration majors are encouraged to join and actively support and participate in the activities of the club.

Hotel Sales and Marketing Association Club

This student club represents an educational organization of more than 6,500 sales-minded hotel/motel executives who manage properties of all types and sizes in more than 90 countries around the world.

Founded in 1927, one of HSMA's primary objectives is—through educational programs, conventions, career development workshops and printed literature—to exchange and interchange the latest information, ideas and sales techniques as they relate to hospitality industry marketing. Overall, HSMA's basic purpose is to advance the knowledge and upgrade the professionalism of those engaged in the selling and servicing of rooms, food and beverages.

HSMA offers its student/faculty members many unique opportunities to learn about the vital aspects of sales and marketing in today's hospitality industry. This knowledge will be of high practical use not only for those seeking a career in hotel/motel sales, but equally for anyone who aspires to any type of administrative or executive position in the lodging, feeding or travel fields.

Dietetics Club

The Dietetics Club was formed for the purpose of promoting and developing professionalism in the field of dietetics. Nutritional activities on a national and statewide basis are discussed, and information on meetings and seminars in the field of foodservice is shared with students.

Activities are planned to foster nutrition at school and in the community and, when feasible, group trips with club members are taken within the state and to nearby states.

Women in Hospitality Club

Recognizing the ascending role of women in the hospitality industry, a group known as "Women in Hospitality" was formed within the School of Hotel, Restaurant and Tourism Administration.

The purposes of the organization are to establish a means of exchange for business, educational and career information, to provide a student job bank, to organize alumni and to seek scholarships to aid students. Members are expected to help in new student recruitment.

Club Managers' Association of America, Student Chapter

The purpose of the student chapter of the Club Managers' Association is to make students more aware of club management and its overall function in the hospitality industry. The chapter visits various clubs in the Connecticut area and takes part in many of their meetings and workshops.

Professional Associations

The School of Hotel, Restaurant and Tourism Administration sustains membership in the following hospitality professional associations:

Governors Tourism Council, State of Connecticut
Council on Hotel, Restaurant and Institutional Education
National Restaurant Association
American Hotel/Motel Association
Club Managers Association of America
American Dietetic Association
Hotel Sales and Marketing Association
International Association of Hospitality Accountants
Association of Hospitality Financial Management Educators
Hospital, Institution and Educational Food Service Society
National Association of College and University Food Service
Food Service Executives Association
Society for the Advancement of Food Service Research
American Society of Travel Agents
Pacific Area Travel Association
Society of Travel and Tourism Educators
Women Executives in Travel
Connecticut Restaurant Association
Connecticut Hotel/Motel Association
Connecticut Club Managers' Association
American Society of Travel Agents
The National Tour Association
Society of Travel and Tourism Educators

Placement

A student in the University of New Haven's School of Hotel, Restaurant and Tourism Administration receives help in finding interesting, satisfying work in his or her chosen field in many ways throughout his or her college years. The school and its faculty are known

to hospitality executives throughout the nation. The student, through attendance and participation in seminars, lectures and industry conventions, has ample opportunity to meet interesting and important people in the field. The school also maintains, in cooperation with Career Development, an active placement service to help students obtain hospitality-related jobs during the academic year as well as to assist them in finding permanent positions.

Many firms send representatives to our campus in an effort to seek qualified candidates for possible employment. Corporations such as Hyatt, Marriott, Sheraton, Walt Disney World, Holiday Inns and other similar firms have visited our school and will continue to do so in the future. While the university does not guarantee employment, the programs provided by the school, the quality of its faculty and the admirable performance of our past graduates in the industry have combined with the efforts of the university's placement office to produce a past record of an enviable 95 to 100 percent graduate placement.

Admission Criteria

An applicant for admission to a program in this school must be a graduate of an approved secondary school or the equivalent. While no set program of high school subjects is prescribed, an applicant must meet the standard of the university with respect to the high school average. Applicants must present 15 acceptable units of satisfactory work, including nine or more units of college preparatory subjects. Satisfactory scores on College Entrance Examination Board Scholastic Aptitude Tests (S.A.T.) or American College Testing (A.C.T.) program tests are required.

The Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the university core curriculum. See page 00 for information.

Transfer Credit

The School of Hotel, Restaurant and Tourism Administration is interested in the further educational and professional development of students with transcripts from junior, senior and community colleges, plus professional schools such as the Culinary Institute of America and Johnson and Wales College. A transfer credit policy for students transferring from a properly accredited school has been developed and will be furnished upon request. Special provisions have also been developed for applicants holding the baccalaureate degree in some other discipline.

Department of Hotel and Restaurant Management

Chairman: Linsley T. DeVeau, M.S.I.R.

Professors: Angelo Bentivegna, Ed.D., Pennsylvania State University; James F. Downey, Ph.D., Purdue University

Assistant Professors: Linsley T. DeVeau, M.S.I.R., University of New Haven; William H. Williams, M.S.I.R., University of New Haven

Instructor: Cynthia Stoller, M.B.A., University of New Haven

The food service industry has expanded rapidly in the past half century, especially in the last two decades, and ranks first in volume of sales among all retail outlets in the United States; a conservative estimate is that one out of every three meals is planned, prepared and served outside the family home. The food service industry is broad in scope and varies from systems such as highly competitive and expensive restaurants and hotels to a multiplicity of fast and less costly food outlets such as schools, universities and hospitals with conservative budgets.

Hotel management offers outstanding personal and financial rewards. The diversified knowledge required in the management and operation of the modern hotel or motel demands a broad and varied professional background. The program in hotel management is designed to assist the student in his or her preparation for a rewarding career in this demanding profession.

B.S., Hotel and Restaurant Management

A student earning a bachelor of science degree in hotel and restaurant management is able to focus on the development of those managerial skills, abilities, and competencies essential to all professional managers, with specific concentration on those characteristics needed for managing hotels, restaurants and related operations.

Required Courses

Students earning a B.S. in hotel and restaurant management must complete 121 credit hours, including the university core curriculum, business electives and those courses listed below:

HR 100 Introduction to the Hospitality Industry
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 210 Hotel Front Office Systems
HR 212 Laws of Innkeeping
HR 215 Supervised Field Experience I
HR 317 Supervised Field Experience II
HR 419 Supervised Field Experience III
HR 521 Supervised Field Experience IV
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 322 Marketing and Sales Promotion for the Hospitality Industry
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 330 Executive Maintenance and Engineering
HR 410 Systems and Operations
HR 411 Food Service Equipment and Layout Design
HR 512 Seminar in Hospitality
TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
DI 200 Volume Food Production and Service I
DI 214 Food Service Management Systems I
DI 216 Food Service Management Systems II
DI 218 Food Service Management Systems III

A.S., Hotel and Restaurant Management

A student may obtain an associate degree in hotel and restaurant management, then continue at the University of New Haven and receive the B.S. in hotel and restaurant management.

Required courses

Students earning the A.S. in hotel and restaurant management must complete 66 credit hours including the courses listed below:

HR 100 Introduction to the Hospitality Industry
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 210 Hotel Front Office Systems
HR 212 Laws of Innkeeping
HR 215 Supervised Field Experience I
HR 317 Supervised Field Experience II
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 322 Marketing and Sales Promotion for the Hospitality Industry
HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
TT 165 Principles of Tourism and Travel
DI 200 Volume Food Production and Service I
E 105 Composition
E 110 Composition and Literature
M 127 Finite Mathematics

Minor Programs

A total of 18 semester hours of course work must be earned in order for a student to declare the field of hotel and restaurant management as a minor area of study. The course work, 18 credits, is identical to the requirements of the various certificate programs.

Hotel and Restaurant Certificate Programs

The department offers certificates in hotel and restaurant management, club management, culinary arts and casino management. Students must complete 18 credit hours of required courses to earn a certificate. Students may choose to take these courses on a credit or non-credit basis. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, if you are admitted, the credits earned may be applied toward the requirements for a degree program.

Hotel and Restaurant Management Certificate

This program is designed for those professionals currently employed in hotels, motels, resorts, clubs and areas of food service, excluding institutional, who wish to increase their knowledge and skills leading to a supervisory position in this growing field. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

HR 304 Cultural Understanding of Foods and Cuisine
HR 321 Hotel, Restaurant and Institutional Accounting and Auditing Procedures

HR 325 Food and Labor Cost Controls
HR 326 Personnel Management in the Hospitality Industry
HR 410 Systems and Operations
HR 411 Foodservice Equipment and Layout Design

Club Management Certificate

The club management certificate is designed for individuals currently employed in a private club who wish to advance to a management position. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

HR 300 Introduction to Club Management
HR 300 Club Operations and Management
HR 300 Club Property Management
HR 300 Club Banquet Management
HR 300 Private Club Administration
HR 300 Committee Policies and Procedures in Club Management

Culinary Arts Certificate

This certificate is designed to expose the student to all levels of culinary techniques. Upon completion of the program, the student will be prepared to pursue a culinary position in any type of food service operation. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

DI 200 Volume Food Production and Service I
HR 202 Volume Food Purchasing
HR 204 Volume Food Production and Service II
HR 304 Cultural Understanding of Foods and Cuisines

Plus two hotel and restaurant management required electives

Casino Management Certificate

This program is designed to give the currently employed hotel and restaurant worker the knowledge necessary to transfer into the rapidly expanding gaming industry. All students are required to take 18 credit hours, including the courses listed below:

Required Courses

HR 100 Introduction to the Hospitality Industry
HR 300 Casino Management
HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
HR 325 Food and Labor Cost Controls
HR 411 Food Service Equipment and Layout Design

Plus one hotel and restaurant and management required elective

Department of Tourism and Travel Administration

Chairman: Elisabeth van Dyke, Ph.D.

Assistant Professors: Thomas Noble, M.S., Southern Connecticut State University; Elisabeth van Dyke, Ph.D., Columbia University

Tourism and travel activities are major national resources for many nations. Travel patterns often affect the construction of facilities, and most countries and states have major programs to expand tourism within their boundaries. Tourism contributes to so many different economic areas that expenditures related to world tourism and travel are expected to approach $600 billion before the end of the century. These figures emphasize the need for expert professional counselors and consultants in tourism and travel.

Tourism and travel professionals impact on commercial activities ranging from transportation, accommodations and food, to touring, sightseeing, shopping and cultural events. The tourism and travel major studies the history, routes, equipment, services and developments in the areas of tourism and travel, as well as the cultural, economic, and political implications of tourism-related activities.

The department of tourism and travel is an allied member of the American Society of Travel Agents (ASTA), and actively participates in the society's events. Students earning the bachelor's degree in tourism and travel administration can compete in the ASTA scholarship funds as well as the internship program for the Annual International Congress.

Through membership in the Society of Tourism Educators, the Pacific Area Travel Association and the Women Executive's International Tourism Association and attendance at seminars students gain practical knowledge. The department also maintains a close relationship with the Institute of Certified Travel Agents thus allowing students to attend the study group activities of the institute.

B.S., Tourism and Travel Administration

A student earning a bachelor of science degree in tourism and travel administration studies international business, economics, international relations and the social and cultural patterns that have shaped the development of the tourism and travel industry. Students receive field experience opportunities at travel agencies, airlines, tour operators, cruise lines and convention bureaus throughout New England.

Students enrolled in the tourism and travel administration major are encouraged to choose a minor in political science, psychology, sociology or international business.

Required Courses

Students earning a B.S. in tourism and travel administration must complete 121 credit hours, including the university core curriculum, business electives and those courses listed below:

TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
TT 215 Supervised Field Experience I
TT 317 Supervised Field Experience II

TT 419 Supervised Field Experience III
TT 521 Supervised Field Experience IV
TT 267 Shipping and Cruises
TT 268 Land Tansportation
TT 370 Airline Transportation and Reservations Procedures
TT 375 Travel Agency Management
TT 480 Wholesalers and Tour Operators
TT 512 Seminar in Tourism and Travel
HR 100 Introduction to the Hospitality Industry
HR 210 Hotel Front Office Systems
A 101 Introduction to Financial Accounting
EC 133 Principles of Economics I
IB 312 International Business
PS 241 International Relations
PS 243 International Law and Organization

Plus seven tourism and travel administration required electives

A.S., Tourism and Travel Administration

A student may obtain an associate degree in tourism and travel administration, then continue at the University of New Haven and earn a bachelor of science degree in the field.

Required Courses

The tourism and travel administration major must complete 60 credit hours, including the courses listed below:

TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
TT 215 Supervised Field Experience I
TT 267 Shipping and Cruises
TT 268 Land Tansportation
TT 317 Supervised Field Experience II
TT 370 Airline Transportation and Reservations Procedures
TT 375 Travel Agency Management
HR 100 Introduction to the Hospitality Industry
CO 100 Human Communication
E 105 Composition
E 110 Composition and Literature
HS 101 Foundation of the Western World
M 127 Finite Mathematics
PS 241 International Relations

Plus four tourism and travel administration required electives and two foreign languages or electives

Minor Program

A total of 18 semester hours of course work must be earned in order for a student to declare the field of tourism and travel administration as a minor area of study. The course work, 18 credits, is identical to the requirements of the certificate program.

Tourism and Travel Administration Certificate

Designed for those currently employed, or planning to be employed, in the tourism and travel industries, the program will prepare the individual for entry level to middle-supervisory positions at travel agencies, tour operators, airline and land transportation installations and other tourism-related facilities. All students pursuing a certificate in tourism and travel administration are required to complete 18 credit hours. The courses are listed below:

Required Courses

TT 165 Principles of Tourism and Travel
TT 166 Touristic Geography
TT 267 Shipping and Cruises
TT 268 Land Tansportation
TT 370 Airline Transportation and Reservations Procedures
TT 375 Travel Agency Management

Department of Dietetics

Acting Chairman: Beverly Bentivegna, R.D., M.Ed.

Assistant Professor: Beverly Bentivegna, R.D., M.Ed., Pennsylvania State University

Health care careers are focused toward mass volume feeding in schools, universities, hospitals, residences for children and retirees, camps, community centers, transportation, armed forces, industrial plants and correctional institutions. The efficient management and supervision of such an extensive array of food service systems offers an almost unlimited challenge to students to prepare themselves academically and practically to assume responsibilities in the hospitality industry.

Dietitians are specialists educated for a profession responsible for the nutritional care of individuals and groups. This care includes the application of the science and care of human nutrition in helping people elect and obtain food for the primary purpose of nourishing their bodies in health or disease throughout the life cycle. This participation may be in single or combined functions; in food service systems management; in extending knowledge of food and nutrition principles; in teaching these principles for application according to particular situations; or in dietary counseling.

B.S., General Dietetics

The university's program in general dietetics is designed for the person seeking a career as a registered dietitian (R.D.). The program emphasizes administrative dietetics which is the management of food service systems with emphasis on health-related facilities.

Students who earn the B.S. degree in general dietetics may apply for membership in the American Dietetic Association. A student who completes professional training in an approved internship program and passes an examination given by the American Dietetic Association, becomes a registered dietitian.

It is suggested that students enrolled in the general dietetics program choose a minor in nutrition, chemistry, biology or computer science.

Any student who has earned a bachelor or graduate degree in another discipline other than dietetics, and who wishes to complete the requirements for Plan IV of the American Dietetic Association, must take a minimum of six courses at the University of New Haven, if verification by ADA is their goal.

Required Courses

A minimum total of 125 credit hours including the university core curriculum must be completed for the bachelor of science degree in general dietetics. The program includes the following courses:

DI 214	Food Service Management Systems I
DI 215	Field Experience I
DI 317	Field Experience II
DI 419	Field Experience III
DI 521	Field Experience IV
DI 216	Food Service Management Systems II
DI 218	Food Service Management Systems III
HR 202	Volume Food Purchasing
HR 304	Cultural Understanding of Food and Cuisines
HR 326	Personnel Management in the Hospitality Industry
HR 411	Food Service Equipment Layout and Design
A 101	Introduction to Financial Accounting
BI 115	Nutrition and Dietetics
BI 116	Fundamentals of Food Science
BI 122	General and Human Biology I (Lab)
BI 301	Microbiology (Lab)
BI 315	Nutrition and disease
BI 461	Biochemistry (Lab)
CH 103	Introduction to General Chemistry
CH 104	General Chemistry Lab
CH 107	Elementary Organic Chemistry
CH 108	Elementary Organic Chemistry Lab
CO 410	Management Communication Seminar
CS 107	Introduction to Data Processing/Basic
E 220	Writing for Business and Industry
EC 133	Principles of Economics I
HS 101	Foundations of the Western World
M 127	Finite Mathematics
MG 125	Management and Organization
P 111	Introduction to Psychology
P 315	Human and Animal Learning
PA 308	Health Care Delivery Systems
SO 221	Cultural Anthropology

Plus one hotel and restaurant management required elective

A.S., Dietetic Technology

Dietetic technicians occupy key supervisory roles in major hospitals and other health care facilities, where they work under the direction of registered dietitians. In smaller health care facilities, technicians undertake key management roles where they often head the dietary department under the periodic supervision of a consulting registered dietitian.

In this program, students are required to complete a total of 1000 hours of field experience in a health-related facility, under the supervision of a registered dietitian.

The dietetic technician program at the University of New Haven has full accreditation from the American Dietetic Association.

Students who receive an A.S. degree in dietetic technology may transfer their credits to the B.S. degree in general dietetics at UNH.

Required Courses

To complete the A.S. degree in dietetic technology, students must complete 63 credit hours, including the courses listed below:

DI 200	Volume Food Production and Service
DI 214	Food Service Management Systems I
DI 215	Field Experience I
DI 216	Food Service Management Systems II
DI 317	Field Experience II
DI 218	Food Service Management Systems III
DI 222	Dietetic Seminar
HR 202	Volume Food Purchasing
BI 115	Nutrition and Dietetics
BI 122	General and Human Biology I (Lab)
BI 315	Nutrition and Disease
CH 103	Introduction to General Chemistry
CH 104	General Chemistry (Lab)
EC 133	Principles of Economics I
M 127	Finite Mathematics
MG 125	Management and Organization
PA 308	Health Care Delivery Systems
SO 113	Introduction to Sociology

Minor Programs

A total of 18 semester hours of course work must be earned in order for a student to declare the field of dietetics as a minor area of study, The course work, 18 credits, is identical to the requirements of the various certificate programs.

See the biology department section in the School of Arts and Sciences for information on the minor in nutrition.

SCHOOL OF PROFESSIONAL STUDIES AND CONTINUING EDUCATION

Ralf E. Carriuolo, Ph.D., dean

The School of Professional Studies and Continuing Education provides educational services for three distinct types of students: those who wish to major in degree programs specifically oriented toward a particular career path; those who seek alternate periods of study and of employment in career-related jobs to help finance their undergraduate education and obtain valuable on-the-job experience; and those adult students pursuing a part-time course of study, usually in the evening hours, for degree programs, for technical updates in their field or for state and/or national accreditations and for personal or professional development.

To service these varied and important needs appropriately, the school is divided into five distinct divisions: the Department of Professional Studies, Cooperative Education, the Division of Evening Studies, UNH in Southeastern Connecticut and the Division of Corporate and Professional Development.

Degrees

Department of Professional Studies

The Department of Professional Studies offers degree programs in these career areas: aviation science, fire science, occupational safety and health and professional studies, an individually created educational program.

Bachelor of Science

Air Transportation Management
Arson Investigation
Fire Science Administration
Fire Science Technology
Occupational Safety and Health Administration
Occupational Safety and Health Technology
Professional Studies

Associate in Science

Aviation Science
Fire and Occupational Safety
Occupational Safety and Health Administration
Occupational Safety and Health Technology
Professional Studies

Certificate Programs

Arson Investigation
Fire Prevention
Hazardous Materials
Health Care Fire Safety
Industrial Fire Protection
Occupational Safety and Health
Professional Pilot

Master of Science

Occupational Safety and Health Management
Fire Science

Professional Certificate Programs

Fire Science
Industrial Hygiene
Occupational Safety

Senior Professional Certificate Program

Occupational Safety and Health Management

Cooperative Education

The Cooperative Education program enables the student to combine practical work experience with his or her college education. When a student enrolls in UNH's Co-op program, he or she will earn a bachelor's degree *and* a salary. And because the student works in a major-related field, he or she will be able to explore career interests first-hand.

Division of Evening Studies

A wide variety of undergraduate courses and complete degree programs are offered in evening sessions during the fall and spring semesters, as well as during an extensive summer term and intersession. All offerings are credit-bearing courses and lead to bachelor and associate degrees in all the academic schools throughout the university. Courses are identical to those offered during the daytime hours and are staffed by the academic departments with the same full and part-time scholars who teach in the day division. Degrees conferred by the university do not distinguish between programs completed during the daytime or evening hours.

The Division of Evening Studies also administers the UNH/University of Siena summer program for the Arts, a six-week intensive study course in central Italy for undergraduate or graduate credit.

UNH in Southeastern Connecticut

Although a private institution, the University of New Haven currently operates learning centers throughout Connecticut serving the general public. The largest of these, UNH in Southeastern Connecticut, is located in the Groton/New London area and enrolls more than 2500 part-time adult students in many fully-supported undergraduate programs. Students are encouraged to investigate the trimester offerings of all the learning centers, availing themselves of a vast array of course offerings in a variety of time schedules.

The Division of Corporate and Professional Development

All seminars and courses for professional certification and development are offered through the Division of Corporate and Professional Development. Annual symposia for occupational safety and health professionals, fire and arson investigators, professionals in the hospitality industries and other specific employment groups are hosted at the university through this division. Courses in real estate, engineering certification preparation, pilot refresher, financial planning, personal and main-frame computer applications, employee benefits, certified nurse assistant, and other professional training are scheduled on a yearly basis at several locations throughout Connecticut.

Recent custom-tailored seminars and training programs developed for specific companies have included such diverse topics as fiber optics, technical and business writing, supervision and management, converting a machine shop to metric units, computer basics for top-level management, and many others.

Based on the current nationally recognized standards, continuing education units (CEUs), rather than credits, are awarded for professional development courses.

Department of Professional Studies

Chairman: Brad T. Garber, Ph.D.

Professors: Brad T. Garber, Ph.D. University of California at Berkeley; Frederick Mercilliott, Ph.D., City University of New York

Associate Professor: Dany J. Washington, Ph.D., Southeastern University

Assistant Professors: David P. Hunter, M.P.A., University of New Haven; Robert G. Sawyer, M.S., University of New Haven

Practitioners-in-Residence: Hamdi M. Balba, Ph.D., University of California at Berkeley; William S. Johnson, B.S., Southern Connecticut State College; Edward L. Tapley, M.S., University of New Haven

The Department of Professional Studies offers several degree programs for students interested in specific employment-related areas and for those who wish to create their own unique structured course of study.

Degree programs offered in professional studies are: aviation science (technology and management), fire science (technology, investigation and administration), and occupational safety and health (administration and technology).

The department also coordinates the A.S. and B.S. in professional studies, a program of specialized curriculum designed for the individual student who seeks an education drawn from a number of areas and disciplines.

Aviation

Director: David P. Hunter, M.P.A.

The aviation industry, both commercial and general, is dynamic, employing 1.5 million people as flight and service personnel and in manufacturing. As the industry continues to expand there will be a need for additional personnel with technical skills.

The aviation program prepares students to meet the demands of the future and the career goals of the individual.

The associate in science degree in aviation science provides the students with a two-year degree program which consists of the technical aviation background required for employment as a pilot. Additionally, a concentration of courses from the Schools of Engineering, Business, or Arts and Sciences is required. Following completion of the associate's degree, students may continue for a bachelor's degree in air transportation management or in a program designed to meet their individual career objectives.

The bachelor of science degree in air transportation management provides the student selecting the flight option with the technical aviation background required of the professional pilot. A strong foundation of management and specific aviation management courses providing knowledge and skills required of pilots and executives in the aviation industry is an integral part of this program.

Students majoring in other program at the university may select any of the aviation courses as electives.

The flight training portion of the program includes private, commercial, instrument, instructor and multi-engine FAA certification, and may be completed at any of the university-approved Connecticut flight schools: Charisma Aviation (Tweed-New Haven Airport), Coastal Air Services (Groton-New London Airport), Cross-Country Aviation (Brainard Airport), Danbury School of Aviation (Danbury Municipal Airport) and Kelaire (Bridgeport-Sikorsky Airport).

Flight training costs are based on rates at university-approved flight training schools. This cost is not included in the university tuition charges and should be paid directly to the flight school.

The university owns and maintains a single engine aircraft for flight training. In addition, all students enrolled in flight courses can supplement their training with the school's flight simulator.

Aviation Association

The Aviation Association is the campus student activities club. The association organizes trips, airmeets and FAA seminars throughout the school year.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

The Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the university core curriculum. See page xx for information.

B.S., Air Transportation Management

Students earning the B.S. in air transportation management must complete 121 credit hours or 131 hours if the flight option is chosen. (Flight option courses are marked*.) These courses must include the university core curriculum and the courses listed below:

Required Courses

AE 100 Aviation Science—Private
AE 105 Primary Flight—Solo*
AE 110 Aviation Meteorology
AE 115 Private Pilot Flight*
AE 130 Aviation Science—Commercial
AE 135 Commercial Flight I*
AE 140 Concepts of Aerodynamics
AE 145 Commercial Flight II*
AE 200 Aviation Science—Instrument
AE 205 Commercial Flight III*
AE 210 Aircraft Powerplants, Systems and Components
AE 230 Flight Instructor Seminar
AE 235 Instructor Flight *or* AE 245 Multi-Engine Rating*
AE 310 Air Transportation Management
AE 400 Airport Management
AE 410 Corporate Aviation Management
AE 430 Aviation Safety Seminar
A 101 Introduction to Financial Accounting

A.S., Aviation Science

A total of 70 semester hours of credit is required for the associate in science degree in aviation science. The program is designed to be completed in two years.

Required Courses

In addition to the aviation courses listed below, students should select an area of concentration of courses in consultation with the director of aviation programs, from a program within another school of the university. This concentration will prepare students for the continuation of their education toward a bachelor's degree to meet their individual needs and career objectives.

AE 100 Aviation Science—Private
AE 105 Primary Flight—Solo*
AE 110 Aviation Meteorology
AE 115 Private Pilot Flight*
AE 130 Aviation Science—Commercial
AE 135 Commercial Flight I*
AE 140 Concepts of Aerodynamics
AE 145 Commercial Flight II*
AE 200 Aviation Science—Instrument
AE 205 Commercial Flight III*
AE 210 Aircraft Powerplants, Systems and Components
AE 230 Flight Instructor Seminar
AE 235 Instructor Flight *or* AE 245 Multi-Engine Rating*
EC 133 Principles of Economics

Plus one history elective
Two math or science courses

*An asterisk indicates flight training courses which may be completed at any of the university-approved flight training schools in Connecticut. The student must register for these courses at the university in order to receive credit and be eligible for related aviation degree programs.

Professional Pilot Certificate

The aviation department offers a professional pilot certificate. Students must complete between 28 and 31 credit hours to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, students who are admitted may apply the credits earned toward the requirements for a degree program.

Required Courses

All students are required to take a minimum of 28 credit hours (or 31 credit hours if AE 235 is taken). The courses are listed below:

AE 100 Aviation Science—Private
AE 105 Primary Flight—Solo*
AE 110 Aviation Meteorology
AE 115 Private Pilot Flight*
AE 130 Aviation Science—Commercial
AE 135 Commercial Flight I*
AE 140 Concepts of Aerodynamics
AE 145 Commercial Flight II*
AE 200 Aviation Science—Instrument
AE 205 Commercial Flight III*
AE 210 Aircraft Powerplants and Systems
AE 230 Flight Instructor Seminar
AE 235 Instructor Flight *or* AE 245 Multi-Engine Rating*

*Flight training courses.

Fire Science

Director: Frederick Mercilliott, Ph.D.

Coordinator: Robert G. Sawyer, M.S.

In the last six years, the number of fires in this country has continued to increase while arson increased at an even more alarming rate.

This increase in the loss of life and property has triggered a rapidly growing need for trained professionals in the fire science field as administrators, investigators and fire protection technicians and engineers. To meet this need, the University of New Haven offers four undergraduate degrees and five certificate programs that provide curricula designed for those entering the field.

Students in the bachelor's degree programs must complete all the credits required for the associate in science with a major in fire and occupational safety, or their equivalent, earned at the University of New Haven or elsewhere. Equivalent work substitution is subject to evaluation by the director of fire science.

The student is advised to check with the director of fire science or the specific instructor for the proper background for various fire science courses. It is recommended that fire science courses be taken in the proper sequence along with the necessary electives.

For those students completing their bachelor's degrees, the university is now offering a graduate professional certificate program in fire protection and a master's degree in fire science with an administrative or technology concentration.

The Co-op Program

The department participates in the cooperative education program (Co-op) which enables you to combine practical, paid work experience in your career field with your college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

The Core Curriculum

In addition to departmental requirements, students must fulfill all requirements of the university core curriculum. See the Core Curriculum section of this catalog for information.

B.S., Arson Investigation—Minor in Criminal Justice

An arson investigator must be knowledgeable in the fundamentals of the physical sciences, social sciences and fire science. He or she must also be familiar with the criminal justice system. A student majoring in arson investigation will be required to complete 15 to 21 credits in criminal justice, qualifying him for a minor in criminal justice.

Required Courses

Students earning the B.S. in arson investigation must complete 126 credit hours including the university core curriculum and those courses listed below:

FS 106	Fire Strategy and Tactics
FS 201	Essentials of Fire Chemistry with Laboratory
FS 202	Principles of Fire Science Technology
FS 207	Fundamentals of Fire Prevention
FS 301	Building Construction, Codes and Standards
FS 303	Fire Protection Fluids and Systems
FS 304	Fire Detection and Control
FS 306	Fire and Casualty Insurance
FS 402	Arson Investigation I
FS 404	Special Hazards Control
FS 405	Fireground Management
FS 406	Arson Investigation II
FS 407	Arson Investigation II Laboratory
FS 408	Fire Protection Law
FS 599	Research Project/Independent Study
A 101	Introduction to Financial Accounting
CH 103	General Chemistry I
CH 104	General Chemistry I Laboratory
CJ 102	Criminal Law *or* FS 408 Fire Prevention Law
CJ 201	Principles of Criminal Investigation
CJ 215	Introduction to Forensic Science *or* FS 501 Internship
CJ 217	Criminal Procedure I
CJ 218	Criminal Procedure II and Evidence
CJ 311	Criminology
IE 223	Personnel Administration *or* MG 125 Management and Organization
M 127	Finite Math
M 228	Elementary Statistics
P 111	Introduction to Psychology
P 336	Abnormal Psychology
PA 101	Introduction to Public Administration *or* FS 105 Municipal Fire Administration
SO 113	Sociology

Plus electives chosen with adviser.

B.S., Fire Science Administration

The fire science administration program was developed for the student wishing to enter or progress in the fire service. Studies include management techniques, fire prevention and suppression, and hazards control, along with the technical subjects required to prepare the future leaders in this highly technical field. A balance of theory and practical solutions is achieved through the course requirements and teaching practices. The graduate in this major will be ready to lead the fire service into the challenging future.

Required Courses

Students earning the B.S. in fire science administration must complete 128 or 131 credit hours, including the university core curriculum and those courses listed below:

FS 105	Municipal Fire Administration
FS 106	Fire Strategy & Tactics
FS 201	Essentials of Fire Chemistry
FS 202	Principles of Fire Science
FS 301	Building Construction, Codes and Standards
FS 303	Fire Protection Fluids & Systems
FS 306	Fire & Casualty Insurance
FS 308	Industrial Fire Protection I
FS 309	Industrial Fire Protection II
FS 402	Arson Investigation I
FS 403	Process & Transportation Hazards
FS 404	Special Hazards Control
FS 405	Fireground Management
FS 406	Arson Investigation II w/Lab
FS 408	Fire Protection Law
A 101	Introduction to Financial Accounting
BI 121	General Biology w/Lab
CH 103	Introduction to General Chemistry I
CH 104	Introduction to General Chemistry Laboratory
CJ 105	Introduction to Security
CS 107	Introduction to Data Processing
EC 133	Principles of Economics
IE 303	Cost Control
M 127	Finite Math
M 228	Elementary Statistics
PA 408	Collective Bargaining
SH 100	Safety Organization & Management
SH 110	Accident Conditions & Control
SH 200	Elements of Industrial Hygiene

Plus electives chosen with adviser.

B.S., Fire Science Technology

As its name implies, this program is more deeply concerned with the technological aspects of fire science. The stress is primarily on fire prevention. Many of the courses cover various engineering fields adapted to the problems that will confront the fire technologist. The essentials of fire chemistry; dynamics; statics; the way in which materials behave under various conditions of stress including heat, process and transportation; the design of industrial structures and conveyances for the maximum protection of the worker and the public are essential areas of study.

Courses in fire prevention and control play a role equal to that of fire suppression. These include an investigation of fire suppression fluids and

systems, fire detection and various automatic suppression systems. The student who completes this program is a planner, a designer of fire prevention systems and an evaluator of facilities and equipment.

Required Courses

Students majoring in fire science technology are required to complete 129 or 130 credit hours including the university core curriculum and those courses listed below:

FS 105 Municipal Fire Administration
FS 201 Essentials of Fire Chemistry w/Lab
FS 202 Principles of Fire Science
FS 301 Building Construction, Codes & Standards
FS 303 Fire Protection Fluids Systems
FS 304 Fire Detection & Control
FS 306 Fire & Casualty Insurance
FS 308 Industrial Fire Protection I
FS 309 Industrial Fire Protection II
FS 402 Arson Investigation I
FS 403 Process & Transportation Hazards
FS 404 Special Hazards Control
FS 405 Fireground Management
FS 406 Arson Investigation II w/Lab
CE 201 Statics
CE 302 Building Construction
CE 306 Hydraulics
CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
CH 116 General Chemistry II
CH 118 General Chemistry II Laboratory
CS 107 Introduction to Data Processing
M 115 Precalculus Math
M 117 Calculus I
M 118 Calculus II
MG 125 Management & Organization
MT 200 Engineering Materials
PH 103 General Physics I
PH 105 General Physics I Laboratory
PH 104 General Physics II
PH 106 General Physics II Laboratory
SH 100 Safety Organization & Management
SH 200 Elements of Industrial Hygiene

Plus electives chosen with adviser.

A.S., Fire and Occupational Safety

The two-year associate in science degree offers students a well-rounded program in safety planning and techniques in both the fields of occupational safety and fire science.

Many students continue for their bachelor's degrees in the fire science field and/or become valuable members of municipal fire departments and safety investigation teams.

Required Courses

To complete the associate in science degree in fire and occupational safety, 66 or 67 credit hours are required including those listed below:

FS 105	Municipal Fire Administration
FS 106	Fire Strategy & Tactics
FS 201	Essentials of Fire Chemistry w/Lab
FS 202	Principles of Fire Science
FS 308	Industrial Fire Protection I
FS 309	Industrial Fire Protection II
CH 103	Introduction to General Chemistry
CH 104	Introduction to General Chemistry Laboratory
CJ 105	Introduction to Security
HS 101	Foundations of the Western World
IE 223	Personnel Administration
M 127	Finite Math
M 228	Elementary Statistics
P 111	Introduction to Psychology
SH 100	Safety Organization & Management
SH 110	Accident Conditions & Controls
SH 200	Elements of Industrial Hygiene
SO 113	Sociology

Plus humanities and science elective, core curriculum requirements and others chosen with adviser.

Minor in Fire Science

Any students wishing to minor in fire science should contact the director of their program. A minimum of 18 credit hours is required. The courses listed below are required unless a substitution is approved by the director of fire science.

Required Courses

FS 105	Municipal Fire Administration
FS 106	Fire Strategy and Tactics
FS 201	Essentials of Fire Chemistry with Laboratory
FS 202	Principles of Fire Science Technology
FS 303	Fire Protection Fluids and Systems
FS 304	Fire Detection and Control

Fire Science Certificate Programs

Coordinator: Frederick Mercilliott, Ph.D.

The fire science department offers certificates in arson investigation and fire science. Students must complete between 21 and 30 credit hours depending on the program to earn a certificate. Students may choose to take these courses for credit or non-credit. For those students who take the non-credit option, it is not necessary to apply for admission to the university. However, students who are admitted may apply the credits earned toward the requirements for bachelor's degree in fire science.

Arson Investigation Certificate

This certificate is designed to provide those in either the public or private sector with the scientific and legal knowledge needed to analyze situations for the possibility of arson. All students are required to take 30 credit hours, including the courses listed below:

Required Courses

CJ 102 Criminal Law
CJ 201 Criminal Investigation
CJ 215 Introduction to Forensic Science *or*
FS 105 Municipal Fire Administration*
FS 201 Fire Science Chemistry
FS 207 Fire Prevention
FS 304 Fire Detection and Control
FS 402 Arson Investigation I
FS 406 Arson Investigation II
FS 501 Internship
FS 599 Independent Study

*Criminal justice majors may substitute PA 101 Introduction to Public Administration; transfer students may substitute police administration.

Fire Prevention Certificate

This certificate is designed to provide the essentials of fire science theory, fire detection and control techniques, and the administrative/legal aspects of fire protection. The program is applicable to the needs of both the private and public sectors of the fire protection profession. All students are required to take 21 credit hours, including the courses listed below:

Required Courses

FS 207 Fire Prevention
FS 301 Building Construction, Codes and Standards
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control
FS 402 Process and Transportation Hazards
FS 404 Special Hazards and Controls

A security course (CJ) or safety course (SH) may be substituted for FS 301, FS 304, or FS 403

Industrial Fire Protection Certificate

This certificate provides the student with the basic essentials of fire science theory and safety procedures necessary for a position in the private sector. All students must take 24 required credits plus 6 elective credits for this certificate.

Required Courses

FS 207 Fundamentals of Fire Protection
FS 303 Fire Protection Fluids and Systems
FS 304 Fire Detection and Control
FS 308 Industrial Fire Protection
FS 309 Industrial Fire Hazards
FS 403 Process and Transportation Hazards
FS 404 Special Hazards and Control
FS 408 Fire Protection Law *or* FS 400 OSH Legal Standards

Plus electives approved by the department chairman

Hazardous Materials Certificate

This certificate was designed to familiarize those who work with hazardous materials, and those interested in the fire and safety aspects of occupational and industrial health with the proper handling procedures, storage and hazards of these materials. The students will also learn the proper procedures to take if or when an accident or fire does occur. Students must take 20 credits, plus a Hazardous Spills Workshop, offered fall and spring semesters for 15 hours.

FS 201 Fire Science Chemistry with Lab
FS 308 Industrial Fire Protection I
FS 403 Process & Transportation of Hazardous Materials
FS 404 Special Hazards and Controls
FS 500 SS: Chemistry of Hazardous Materials
PH 130 Radiation Safety

Hospital and Health Care Fire Safety and Security Certificate

This certificate is specifically designed for the health care or safety/security professional, working in a health care facility. The courses in this program are intended to inform the student of potential fire problems, and to prepare him or her for the best methods of providing patient protection.

Required Courses

FS 207 Fundamentals of Fire Prevention
FS 308 Industrial Fire Protection I
FS 309 Industrial Fire Protection II
FS 404 Special Hazards and Controls *or*
FS 500 Special Topics: Hospital and Health Care Fire Science and Security
FS 503 Patient Evacuation & Protection

Occupational Safety and Health

Director: Brad T. Garber, Ph.D.

In recent years, the global community has become painfully aware of the importance of safety procedures and precautions in our everyday survival: the accidental release of lethal gases in India and the United States; the shuttle Challenger disaster; the cyanide deaths from altered Tylenol capsules, to mention only a few cases. Clearly, safety decision-making has been brought to the forefront of corporation management. No employer today can afford to relegate safety to a minor role in the organizational hierarchy.

This great interest in safety issues has generated a growing demand for professional practitioners in the field. Industry, retailing, commerce, communications, construction and labor unions, as well as local, state and federal governments, need competent safety specialists.

The demands placed upon the safety professional require a broad background in chemistry, physics, engineering, psychology and biology. this interdisciplinary program draws upon the resources of the entire university. In addition to required courses, students choose from among a diversified offering of restricted and free electives with a balance of courses designed to meet the needs and interests of individual students.

In addition to the four-year bachelor of science programs in occupational safety and health administration and technology, the university also offers two-year associate degree programs and an occupational safety and health

certificate. At the graduate level, a complete program is offered which includes a master of science in occupational safety and health management as well as two professional certificates and a senior professional certificate.

The Co-op Program

The department participates in the cooperative education program (Co-op) which combines practical, paid work experience in the career field with college education. For further details see "The Co-op Program" in the School of Professional Studies and Continuing Education section or consult the Co-op office.

B.S., Occupational Safety and Health Technology

Both associate and bachelor's degrees are offered in the field of occupational safety and health technology. These degree programs provide strong technical preparation with courses in calculus, chemistry, physics, biology and other disciplines related to the evaluation and resolution of complex safety problems.

In addition to the requirements for the A.S. degree below, bachelor's candidates also must complete the university core curriculum and the following courses. The complete B.S. program totals 131 credit hours:

Required Courses

BI 121	General & Human Biology I w/Laboratory
BI 122	General & Human Biology II w/Laboratory
FS 304	Fire Detection & Control
IE 303	Cost Control
IE 348	Manufacturing Processes
M 117	Calculus I
M 118	Calculus II
PH 130	Radiation Safety
SH 201	Evaluation of the Occupational Environment
SH 308	Industrial Fire Prevention I
SH 309	Industrial Fire Prevention II
SH 400	OSH Legal Standards
SO 113	Sociology

Plus 12 credit hours of restricted electives

B.S., Occupational Safety and Health Administration

A second group of degrees is offered in the field of occupational safety and health administration. These programs put less emphasis on the technical areas, but broaden the scope of the program into the areas of management and decision-making necessary to give the student a broad-based outlook necessary to direct safety functions.

In addition to the requirements for the A.S. degree below, bachelor's candidates must also complete the university core curriculum and the following courses, for a combined total of 123 credit hours:

Required Courses

BI 121	General & Human Biology I with Laboratory
BI 122	General & Human Biology II with Laboratory
E 230	Public Speaking
FS 208	Instructor Methodology
FS 304	Fire Detection and Control
IE 223	Personnel Management
PH 130	Radiation Safety
SH 201	Evaluation of the Occupational Environment

SH 308 Industrial Fire Prevention I
SH 309 Industrial Fire Prevention II
SH 400 OSH Legal Standards

Plus 12 additional hours of restricted electives and 6 hours of unrestricted electives

A.S., Occupational Safety and Health Technology

Students earning the A.S. degree in occupational safety & health technology must complete 67 credit hours including the courses listed below:

Core Courses

CH 115 General Chemistry I
CH 117 General Chemistry I Laboratory
CS 107 Introduction to Data Processing - BASIC
E 105 English Composition
E 110 English Composition & Literature
E 220 Writing for Business & Industry
FS 201 Essentials of Fire Chemistry w/Lab
M 115 Pre-Calculus Mathematics
P 111 Psychology

Required Courses

CH 116 General Chemistry II
CH 118 General Chemistry II Laboratory
CJ 105 Introduction to Security
IE 223 Personnel Administration
M 228 Elementary Statistics
PH 103 General Physics I
PH 105 General Physics I Laboratory
PH 104 General Physics II
PH 106 General Physics II Laboratory
SH 100 Safety Organization & Management
SH 110 Accident Conditions & Controls
SH 200 Elements of Industrial Hygiene

Plus 3 additional credit hours of restricted electives and 6 hours of unrestricted electives

A.S., Occupational Safety and Health Administration

Students earning the A.S. in occupational safety and health administration must complete 64 credit hours including the courses listed below:

Core Courses

CH 103 Introduction to General Chemistry
CH 104 Introduction to General Chemistry Laboratory
CS 107 Introduction to Data Processing - BASIC
E 105 English Composition
E 110 English Composition & Literature
E 220 Writing for Business & Industry
FS 201 Essentials of Fire Chemistry w/Lab
M 127 Finite Mathematics
P 111 Psychology
SO 113 Sociology

Literature or philosophy requirement

Plus 3 hours of restricted electives and 6 hours of unrestricted electives

Required Courses

CH 107 Elementary Organic Chemistry
CH 108 Elementary Organic Chemistry Laboratory
CJ 105 Introduction to Security
FS 106 Fire Strategy and Tactics
M 228 Elementary Statistics
SH 100 Safety Organization and Management
SH 110 Accident Conditions and Controls
SH 200 Elements of Industrial Hygiene

Occupational Safety and Health Certificate

Director: Brad T. Garber, Ph.D.

The department offers an occupational safety and health certificate for which students must complete 18 credit hours. This program of study covers the fundamentals of on-the-job safety and health as well as the requirements of OSHA regulations. These courses provide an introduction to dealing with problems typically confronted by safety professionals.

Required Courses

SH 100 Safety Organization and Management
SH 110 Accident Conditions and Controls
SH 200 Elements of Industrial Hygiene
SH 210 Sound-Hearing-Noise
SH 400 OSHA Legal Standards
FS 304 Fire Detection and Control

Professional Studies*

Coordinator: Dean's Office

In today's workplace of ever-increasing specialization, business and industry oftentimes develop needs unmet by traditional undergraduate degree programs. Through careful planning, the creative student can develop a unique, individualized course of study leading to a degree in professional studies that provides for a broad-based education in a number of interlocking academic areas. Unlike the general studies programs, which are for students whose career goals are currently undefined, the professional studies programs are for students who know exactly what they want but cannot find it in traditional degree programs.

Students interested in creating professional studies programs are urged to contact the chair of the professional studies department who, in conjunction with the dean and a faculty advisory committee, will work with the student in the creation of an appropriate sequence of courses.

*This program is currently under consideration for licensure by the Connecticut State Board of Higher Education.

B.S., Professional Studies

For the goal-oriented student, the B.S. in professional studies provides the necessary flexibility to create an entire degree program to fit the student's specific educational needs. Drawing on courses from every academic area in the university and even creating new courses, the B.S. in professional studies provides employment possibilities in areas combining engineering, business and manufacturing, and the humanistic, social and natural sciences.

Designed by the student in cooperation with appropriate faculty and practitioners in the field, the B.S. curriculum allows the student full access to the wide range of faculty expertise throughout the university.

Students must present their proposed program, approved by a faculty adviser, to a faculty Advisory Committee for final approval no later than the close of their freshman year. Transfer students or those currently enrolled at the university in other programs must enter the B.S. in professional studies before completing 84 applicable credit hours.

Required Courses

Students must complete 121 credit hours including the core curriculum and those courses listed below:

Professional Studies Curriculum (designed by student)	15 courses
Minor Elective Curriculum (designed by student)	7 courses
Open Elective Curriculum (designed by student)	7 courses

A.S., Professional Studies

For students whose career paths lead to areas not clearly defined by existing major programs, the A.S. in professional studies provides a self-directed program of study utilizing the resources of a variety of departments throughout the university. Similar to the B.S. in professional studies, the A.S. degree allows students to create their own courses or ones created specifically for their programs. In conjunction with a faculty member and the chairman of the professional studies department, the A.S. program of study is carefully reviewed and approved by an Advisory Committee to ensure appropriate educational content. Courses in the A.S. program are applicable to other programs at the bachelor's degree level.

Required Courses

To earn an associate of science in professional studies, students must complete 61 credit hours, including those listed below:

Professional studies curriculum (designed by student)	10 courses
Open elective curriculum (designed by student)	3 courses

E 105	Composition
E 110	Composition and Literature
HS 101	Foundations of the Western World

Quantitative skills course
Computer science course
Scientific laboratory course
Social science course

Cooperative Education

Director: Cheryl Lison, M.A., University of Connecticut

Assistant Director: Patricia Bolles, M.S., Southern Connecticut State University

Co-op Ed Coordinators: Domingo Arias, M.A., University of Chile; Marcia B. Proto, M.A., Springfield College; Andre Salsedo, Ph.D., Syracuse University; Philip Schmitz, M.A., State University of New York at Albany

Co-op Liaison Faculty: Richard A. Bassett, M.S., School of Business; B. Badri Saleeby, Ph.D., School of Engineering; Robert G. Sawyer, M.S., School of Professional Studies; Henry E. Voegeli, Ph.D., School of Arts and Sciences; William H. Williams, M.S., School of Hotel, Restaurant & Tourism Administration

Cooperative education (Co-op) is an academic program that enables students to combine career-oriented, paid, full-time work experience with their college education. Co-op students benefit by being able to explore career interests firsthand, by gaining valuable work experience related to their majors, and by earning money to assist with their college expenses.

How Co-op Works

Students may enroll in Co-op when they begin their degree programs. Work assignments start later, usually at the end of the sophomore year. Since the keys to a successful co-op experience are flexibility and preparation, co-op coordinators advise and counsel students in each academic area, helping students to prepare resumes and develop interview skills.

The flexibility of the UNH Co-op program gives both full- and part-time students a chance to schedule plans of study and work which will fit their needs. Undergraduate students attend classes for the first two years of college and they prepare for work assignments which start at the end of the sophomore year. Juniors and seniors alternate classes with Co-op work which may last four or six months. Transfer students usually enter the Co-op cycle as if they were sophomores, but individual cases vary and students will review their needs with Co-op coordinators.

The variety and number of Co-op employers attest to their recognition that cooperative education is an effective way to identify and train future employees. UNH Co-op employers include large, technology-based corporations such as United Technologies' Pratt & Whitney and Norden Systems divisions, Uniroyal Chemical Corporation, Inc., General Electric and General Dynamics' Electric Boat Division. Co-op students can explore careers in information services with small firms as well as industry leaders such as AETNA and IBM. The rapidly growing hospitality industry offers many opportunities ranging from the Sheraton Hotel and Towers in nearby Stamford, CT, to Marriott Corporation resorts and hotels in Colorado and Florida.

State and federal government agencies such as the Department of Transportation, the IRS and the U.S. Customs Bureau also are an important resource. Student assignments include computer programming, accounting, counseling and criminal investigation. While

most of the Co-op jobs are in Connecticut and adjacent states, there are opportunities throughout the mid-Atlantic area, including Washington, D.C. Students may live in university housing while doing work assignments in the greater New Haven area or they may work with their Co-op coordinators to develop jobs at home.

Students interested in Co-op will meet with a Co-op coordinator to review eligibility requirements and the plan of study for their degree program. Co-op plans vary so it is important for students in the Schools of Arts & Sciences, Business, Engineering, Professional Studies, and Hotel, Restaurant & Tourism Administration to take advantage of the individual attention their co-op coordinators will provide. With this support, Co-op students can combine classroom theory and work experience to make the most of their college careers.

Division of Evening Studies

Director: Dany J. Washington, Ph.D., Southeastern University

Corporate Representative: Molly B. Rudolph, M.A., University of New Haven

The University of New Haven recognizes that learning is a life-long process. The Division of Evening Studies was established to service part-time, adult learners seeking to widen their academic horizons while pursuing a career. The division is dedicated to guiding these students into programs that best suit their strengths and career needs.

All offerings are credit-bearing courses and lead to bachelor and associate degrees in all the academic schools throughout the university. Courses are identical to those offered during the daytime hours and are staffed by the academic departments with the same full and part-time scholars who teach in the day division. Degrees conferred by the university do not distinguish between programs completed during the daytime or evening hours.

All degree programs are offered through the Division of Evening Studies except for applied mathematics-natural sciences, English and world music. Evening students must enroll in some day courses to receive a degree in these programs.

Most courses offered by the division, except for laboratory and certain four-semester-hour courses, meet in the early evening hours, one day per week.

An evening student may carry as few as two or as many as eleven semester hours, concurrently.

Admission Requirements

Generally, graduates of accredited secondary schools or persons who have a state high school equivalency diploma are eligible for admission.

Information regarding the examination for the state high school equivalency diploma may be obtained from the evening admissions office or by writing to the Bureau of Youth Services, State Department of Education, State Office Building, Hartford, Connecticut 06103.

In some cases, a person who has completed at least two years of secondary school with a satisfactory record may be considered for

admission, provided he or she performs exceptionally well on the required placement examinations. The university is interested in evidence of maturity, motivation and formal education as prerequisites for admission. Such an admission will be tentative for one year, during which time the student must pass the examinations for the state high school equivalency diploma. A person who has not completed at least two years of secondary school will not be considered for admission.

With the exception of auditors, students taking any course, whether for a degree or not, must meet admission requirements.

Applicants are required to take placement tests including mechanics of English and reading comprehension and a mathematics examination. Scholastic Aptitude Tests are not required for admission, but if they are taken and a satisfactory score obtained, they may be accepted in place of University of New Haven placement tests. Applicants who have completed 30 or more credit hours of work with a "C" average or better from an approved college or university may be exempt from taking placement tests depending upon the subject matter of the credit hour course work.

The University of New Haven is a Servicemen Opportunity College (SOC) and accepts credits for prior learning as awarded by CLEP, DANTES, or other nationally recognized crediting mechanisms.

Admission Procedure

Applicants who seek admission should call or write the Division of Evening Studies for specific details. All applicants are encouraged to arrange for a personal interview which may be scheduled during or after normal business hours at the convenience of the applicant.

During the interview, the applicant will discuss and plan a program, and complete the necessary forms to request official copies of secondary school and college transcripts.

Registration

New students may register in person at the Evening Studies office or may mail in their registration and application form. Currently enrolled students may register by mail prior to the announced deadline. Students should register in the Evening Studies office prior to making any payments in the Bursar's office. Current students who complete the registration procedure will have a valid registration and can normally be assured a seat in a class. A separate registration is required for each academic term students wish to attend. Auditors follow the same procedure and pay the same tuition and fees as students enrolled for credit.

Payment of Tuition and Fees

The student completes the registration procedure by paying tuition and fees. There is a penalty fee for delaying either process beyond the end of the registration period.

Students are urged to plan their programs carefully before completing registration forms to avoid the need for changes. Once the registration period has ended, a change of registration fee is charged for each change made. The fee is payable when the form requesting the change is submitted.

Alumni who audit courses pay a reduced tuition, but must be cleared through the Alumni Office before registering.

Summer Sessions

Day and evening undergraduate courses are offered during the summer in a series of sessions ranging from four to eleven weeks in length. The first session begins shortly after the close of the spring semester. Resident dormitory students may therefore continue their studies uninterrupted through the entire summer.

The university welcomes visiting students from other colleges and universities who wish to transfer summer courses back to their institution. Dormitory facilities are available for full-time summer study. Credits earned at the University of New Haven are generally accepted by other schools, but students are urged to consult with their home institutions for any special requirements or procedures for credit transfer.

University of New Haven students can attend one or more of the UNH summer sessions to lighten their study load during the regular academic year, to reduce the time required for a degree, to prepare for other courses, to make up courses or to take additional work beyond that required for a degree and still complete a program on schedule.

A list of courses offered during the summer is available from the Division of Evening Studies.

Study Abroad Program

The University of New Haven offers a six-week summer program through its Adjunct Faculty process in the fine and performing arts at the University of Siena in Tuscany, Italy. Credit studies in music history, performance and composition, in the Italian language, and in art and cultural history studies are available through this program. For further information, please contact the Division of Evening Studies or Sessione Senese per la Musica e l'Arte, University of Siena, Dr. Joseph DelPrincipe, 595 Prospect Road, Waterbury, CT 06706, (203) 754-5741.

The University also offers a two-week Criminal Justice Seminar in London, England, for any student enrolled in a degree program or any adult interested in a noncredit experience. Three academic credits are available.

The cost includes round-trip airfare from New York to London on a scheduled airline; ten (10) nights at a London Hotel and breakfast, all at the specified price of $1,395* with four open days for personal sightseeing.

All travel inquiries should be addressed to Sasha Travel, Inc., 33 R Water Street, Guilford, CT 06437, (203) 453-2949. A $300 deposit should accompany any reservation.

* Price based on rates and tariffs in effect as of October 31, 1987.

Winter Intersession

A number of undergraduate courses are offered during the period between the fall and spring semesters. These courses blend both traditional and innovative methods of instruction, including team teaching, field trips, lectures, laboratory work and research projects. A list of courses offered during intersession will be available from the Division of Evening Studies before each session.

Off-Campus Corporate Programs

The Division of Evening Studies can provide credit courses, certificates or complete degree programs at off-campus company facilities. For many employees who participate in these programs, on-site instruction is a convenient and economical alternative in professional enrichment. All classes are staffed by UNH faculty members, many of whom are current practitioners in business and industry. The option provides for a more tailored approach in greater

flexibility of scheduling and in choice of courses. Classes are available during working hours, on "shared" time or after hours.

In addition to providing instruction at a company, the Evening Division can accommodate employee working schedules with the following services: on-site registration, academic counseling and administration of placement examinations. Also available is the Tuition Deferment Policy which enables employees to defer payment of tuition with a letter of authorization from the company. Information on this policy and other corporate services can be obtained through the Corporate Representative for Continuing Education.

Certificate Programs

Students can take their first step towards an undergraduate degree be registering for a certificate program at the University of New Haven.

Each certificate program is carefully designed as an introduction to a particular course of study. Later, students may choose to apply the credits they have earned toward an undergraduate degree.

Each program consists of a series of courses—from 15 to 30 credit hours—in a specialized area. The university offers certificate programs in:

School of Arts & Sciences

Fashion Design
Graphic Design
Interior Design
Law Enforcement Science
Mass Communications
Paralegal Studies
Photography

School of Business

Administrative Assistant Science
Management Information Sytems
Effective Presentation & Communication
Health Care Systems Management
Human Resource Management
Office Systems Management
Public Policy
Security Management
Supervisory Management

School of Engineering

Computer Applications
Computer Programming

School of Hotel/Restaurant Administration

Bar Management
Casino Management
Club Management
Culinary Art
Dietary Aide
Dietary Management
Executive Housekeeping Administration
Food Service Education
Hotel Management
Hotel & Restaurant Management
Institutional Food Service Administration
Restaurant Management
Travel & Tourism Administration

School of Professional Studies

Arson Investigation
Fire Prevention
Hazardous Materials
Health Care & Fire Safety
Industrial Fire Protection
Occupational Safety & Health
Professional Pilot

UNH in Southeastern Connecticut

Director: John F. O'Brien, M.B.A., University of New Haven

For over two decades, the University of New Haven has been providing both undergraduate and graduate educational opportunities for residents in the Groton/New London region. With the exception of some engineering laboratories, most of the courses required to complete a degree are offered in southeastern Connecticut.

At the undergraduate and graduate levels, there are credit and non-credit offerings in both business and engineering. Undergraduate programs include: accounting, business administration, management information systems, management science, human resource management, computer science, electrical engineering, industrial engineering, mechanical engineering and industrial/mechanical technology with an emphasis in shipbuilding. At the graduate level, programs are offered in the areas of business, computer and information science, industrial engineering, public administration, industrial relations, industrial/organizational psychology, mechanical engineering and operations research.

Certificate programs are also available on both levels. Senior professional certificate programs are offered for those students who already have an advanced degree. Students enrolling in these certificate programs may apply credit earned to an appropriate degree program. Courses are scheduled often enough to enable students to complete certificate programs in a relatively short period of time.

In addition to classes open to the general public, UNH in Southeastern Connecticut offers several programs to the employees of local industries on company premises. These programs include credit courses, certificate programs, non-credit courses, and executive seminars. The UNH in Southeastern Connecticut staff periodically visit local business and industry representatives in order to inform them of university offerings that may be of interest to them.

Both undergraduate and graduate programs that are open to the public are offered at one convenient location in Groton. Courses are held primarily in the early evening, consistent with the schedules of an adult working population. Through an agreement with the Groton Public Library, library facilities are made available to UNH students. A computer terminal facility is available to support programs. These terminals access the main academic system located at the main campus in West Haven. Students enrolled in computer-oriented courses are, therefore, afforded the same level of access as students enrolled in similar courses on-campus. More details on the university's computer

facilities can be found elsewhere in this catalog.

Admission and registration requirements for all UNH in Southeastern Connecticut programs are consistent with those for main campus students. Acceptance into a degree program offered in southeastern Connecticut means that a student may enroll in the same program offered on the main campus. The university maintains an administrative office in Groton to assist students through the admissions and degree process. Faculty, professional staff and support personnel are assigned to the office on a full-time basis.

Servicemembers Opportunity Colleges

UNH in Southeastern Connecticut has been designated as an institutional member of Servicemembers Opportunity Colleges (SOC), a group of more than 400 colleges and universities providing voluntary post-secondary education to members of the military throughout the world. As a SOC member, UNH in Southeastern Connecticut recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense and a consortium of thirteen leading national higher education associations; it is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACJC).

The Core Curriculum

In addition to department requirements, students must fulfill all requirements of the university core curriculum. See page xx for information.

Division of Corporate and Professional Development

Acting Director: Richard Morrison, Ph.D.

Specialized, not-for-credit classes and seminars are offered by the Division of Corporate and Professional Development for undergraduate and graduate students, business and engineering professionals, public and private organizations, and the public at large. Students may explore new directions, acquire and or advance professional skills, gain personal enrichment, or just keep in step with recent advances in their field.

Together with students, industry and the academic community, the division develops a sequence of courses each year to meet current and future needs in the private and public sectors. The number of class hours in each course depends upon the time necessary to do justice to the topic or the regulations of accrediting associations. Offerings normally include computer skills, professional engineering review, financial planning, real estate, insurance, certified nurse assistant training, employee benefits, supervisory and management training, and human resource management.

Realizing the importance of computers in today's society, the division continues to offer a wide choice of introductory and advanced computer

packages, including one-day, hands-on seminars in Lotus 1-2-3; dBase III; Wordstar; Wordperfect; MS/DOS; and PFS, with new seminars being developed continually to meet area demand. The division also offers "Computer Tutor" which provides individuals with intensive training on most software packages on a one-to-one basis.

All courses offered throughout the year are staffed by the university faculty or by persons recognized as experts in their individual fields. Classes carry CEUs (continuing education units), a nationally recognized measurement that documents the type, quality and time period involved in non-credit coursework. A CEU is equivalent to 10 contact hours of a given course in which the student has earned a grade of A, B, C, D or Pass. The CEUs are transferable in the same manner that credits make it possible to transfer degree work from one school to another. The Division of Corporate and Professional Development holds courses on the university's main campus in West Haven and at various off-campus locations throughout the state.

Professional Development Seminars

The Division of Corporate and Professional Development also coordinates conferences and short-term institutes for undergraduate and graduate students, and for area professionals. The professional development seminars offer the latest in technology, current law and business practices. Seminars held on the West Haven campus in recent years include: the National Symposium for Occupational Safety and Health, annual fire science seminars, management development series, supervisory training, human resource management programs and financial planning. The division also hold on-site seminars and training programs at many companies and organizations around the state. The university awards continuing education units (CEUs) and certificates to individuals who complete any professional development seminar.

COURSES

Accounting*

A 101 Introduction to Financial Accounting
Opened only to non-accounting majors. Deals primarily with reporting the financial results of operations and financial position to investors, managers and other interested parties. Emphasizes the role of accounting information in decision making. 3 credit hours.

A 102 Introduction to Managerial Accounting
Prerequisite: A 101. This course is open only to non-accounting majors. The application of accounting in relation to current planning and control, evaluation of performances, special decisions, and long-range planning. Stress is on cost analysis. Additional topics include income tax planning, product costing and quantitative techniques. 3 credit hours.

A 111 Introductory Accounting I
This is a prerequisite to all other courses in accounting. A fundamental examination of the concepts, principles and procedures embodied in the financial accounting system. Emphasis will be placed upon the preparation of financial statements for service-rendering and merchandising business concerns through the application of financial accounting principles. 3 credit hours.

A 112 Introductory Accounting II
Prerequisite: A 111. An extension of the fundamental examination developed in A 111 to include the application of financial accounting principles to manufacturing business concerns. Additional emphasis will be placed upon an introduction to, and application of, managerial accounting principles for planning and controlling manufacturing operations. 3 credit hours.

*Note: Due to expanding use of computing capabilities, a computer use fee may be charged for any accounting course.

A 220 Intermediate Financial Accounting I
Prerequisite: A 112. A rigorous examination of financial accounting theory and practice applicable to the corporate form of business organization. With an emphasis upon reporting corporate financial status and results of operations, the course will include: the principles governing, and the procedures implementing, accounting valuations for revenue, expense, gain, loss current assets and deferred charges. Throughout, reference is made to the relevant publications of professional accounting societies and associations. 3 credit hours.

A 221 Intermediate Financial Accounting II
Prerequisite: A 220. Continuing the emphasis upon corporate financial reporting established in A 220. The principles and procedures applicable to accounting valuations for current liabilities, long-term liabilities, deferred credits and stockholders equity are examined. Special attention is directed to preparing the statement of changes in financial position. 3 credit hours.

A 222 Intermediate Financial Accounting III
Prerequisite: A 221. Advanced topics include income tax allocation, pensions and leases, accounting changes, price level changes, installment sales and consignments. Throughout, reference is made to the relevant publications of professional accounting societies and associations. 3 credit hours.

A 223 Cost Accounting I
Prerequisite: A 112. An in-depth examination of the financial accounting principles and procedures underlying the determination and reporting of product costs for manufacturing concerns. Emphasis is placed upon the concepts and classifications of product costs (direct material, direct labor and manufacturing overhead), as well as the recording and accumulating of such costs within job order and process cost accounting systems. 3 credit hours.

A 224 Cost Accounting II
Prerequisite: A 223. A continuation of the emphasis on product-cost determination established in A 223, integrated with an examination of accounting systems for managerial planning and control. Topics include budgeting, standard costs, variance analysis, direct costing, cost-volume-profit analysis and joint and by-product costing. 3 credit hours.

A 225 Advanced Managerial Accounting
Prerequisite: A 224. A comprehensive analysis of the uses and behavioral implications of managerial accounting information. Emphasis will be placed upon the economic and motivational impact of internal accounting information for planning and controlling operations. Topics include budgets (capital and operating), performance reports, responsibility accounting (cost, profit and investment centers), transfer-pricing, performance measurement, contribution reporting, pricing methods and relevant costs of decision making. 3 credit hours.

A 240 Financial Statement Analysis
Prerequisites: A 220, A 221, A 222. The tools and techniques of analyzing financial statements on the part of investors, creditors, and corporate financial management will be examined. Implications of portfolio theory and impact of different accounting standards will be integrated throughout the course. 3 credit hours.

A 331 Advanced Financial Accounting I
Prerequisite: A 222. A concentrated examination of financial accounting concepts and the principles and procedures applicable to partnership topics include: formation and division of income, changes in ownership and liquidation. Consolidation topics include comprehensive coverage of the cost and equity methods, as well as other issues (purchase versus pooling of interests, entity theory, etc.) related to consolidation accounting. Other financial accounting topics of a specialized nature not previously covered may be included at the discretion of the instructor. 3 credit hours.

A 332 Advanced Financial Accounting II
Prerequisite: A 222. An examination and evaluation of the literature generated by authoritative financial accounting boards to determine its effect on the structure of financial accounting theory, its impact on financial accounting practice and its implications for the future role of the accountant. Extensive use is made of the publications of professional accounting societies and accounting associations. 3 credit hours.

A 333 Auditing and Reporting Principles
Prerequisite: A 222. A general examination of the role and function of the independent auditor in the performance of the attest function. Emphasis will be placed on current auditing pronouncements, the audit report, statistical sampling, evaluation of internal control and the determination of the scope of an audit. Rules and standards of compilation and review reports are presented. 3 credit hours.

A 334 Auditing Procedures
Prerequisite: A 333. An examination and evaluation of the detailed procedures associated with auditing accounts related to a firm's financial position and operating results. An evaluation and documentation of internal control procedures will be an integral aspect of the evaluation of the fairness of accounting balances. A practice audit case will be used to develop an appreciation for the application of auditing techniques. 3 credit hours.

A 335 Federal Income Taxation I
Prerequisite: A 112. An introduction to the federal income tax law including history, economic and social aspects, sources of tax law and administration. Course coverage will be devoted primarily to individual taxation, including determination of gross income, deductions, exemptions, filing status and alternative methods of tax computation. 3 credit hours.

A 336 Federal Income Taxation II
Prerequisite: A 335. A continuation of A 335 including coverage of property transactions, capital gains and losses, non-taxable exchanges, tax accounting methods and elections, tax periods and special tax computations. Also an introduction to corporate taxation, organization, operation, distributions accumulations and liquidation. 3 credit hours.

A 337 Federal Income Taxation III
Prerequisites: A 335, A 336. A continuation of A 336 including taxation of S Corporations, partnerships, federal estates and gifts and certain state transfer taxes. Also the income taxation of trusts and estates and tax administration and research. 3 credit hours.

A 350 Accounting Information Sytems
Prerequisite: A 221. This course provides a thorough introduction to basic systems theory, a firm working knowledge of systems analysis and design techniques and an exposure to the several fundamental accounting information systems inherent in most business firms. Emphasis is on EDP environments. 3 credit hours.

COURSES

Art

AT 101-102 Introduction to Studio Art
Foundation study in the visual arts designed to heighten the student's aesthetic awareness and to provide an introduction to the study of drawing, painting and design using a variety of materials. 3 credit hours.

AT 105 Basic Drawing I
A basic foundation course which includes a disciplined study in the fundamentals of drawing such as nature studies, perspective, exercises in coordination of hand and eye. 3 credit hours.

AT 106 Basic Drawing II
A continuation of AT 105 with emphasis on perspective and depiction of three-dimensional space and form by two-dimensional means. Study of architectural forms, natural objects and landscape. 3 credit hours.

AT 122 Graphic Design Production
Prerequisite: AT 100 level course, or consent of the instructor. Studio introduction to the technical skills of graphic design including: copyfitting, type specification, typesetting, layout and mechanical preparation. 3 credit hours.

AT 201 Painting I
Problems in pictorial composition involving manipulation of form and color. Various techniques of applying pigment will be explored as well as mixing pigments, stretching and priming canvases. 3 credit hours.

AT 202 Painting II
A continuation of AT 201 with further exploration of two-dimensional pictorial arrangements of form and color for greatest visual effectiveness. Students will be encouraged to develop their own personal idiom in the medium. 3 credit hours.

AT 203 Graphic Design I
Prerequisites: AT 122, AT 312; AT 221 or AT 222 or consent of instructor. Exploration of graphic design problems emphasizing integration of form development with content application. Intended to develop student's ability to communicate ideas and feelings effectively through visual means.

AT 204 Graphic Design II
Prerequisite: AT 203 or consent of the instructor. A continuation of AT 203 with emphasis on the application of design principles to actual job situations from the original concept to the mechanical. 3 credit hours.

AT 205 Ceramics I
Introduction to clay as an expressive medium. Hand-built and wheel-thrown methods with various glazing and decorative techniques. Stacking and firing kilns. An exploration of three-dimensional form. Good for engineers. Laboratory Fee. 3 credit hours.

AT 206 Ceramics II
Continuation of AT 205 with free exploration of novel and experimental approaches to the medium. Laboratory Fee. 3 credit hours.

AT 209-210 Photography I and II
Introduction to basic techniques, materials and aesthetic aspects of black and white photography. Laboratory course with emphasis on the individual student's image making. Photography II gives special attention to problems dealing with images in groups, series and sequences. New techniques and technical demonstrations. Laboratory Fee. 3 credit hours each.

AT 211 Basic Design I
A basic foundation course includes exploration of two-dimensional visual elements—line, color, light and dark, shape, size, placement, and figure-ground, and their effective use. A basic course for those wishing basic art understanding. 3 credit hours.

AT 212 Basic Design II
A continuation of AT 211, with concentration on three-dimensional elements of design including positive and negative volumes, surfaces, structural systems, etc., employing a variety of materials. 3 credit hours.

AT 213 Color
An intensive exploration of color perception and interaction with manipulation of form and color for greatest effectiveness in pictorial compositions. 3 credit hours.

AT 216 Architectural Drawing
Prerequisite: AT 105. Drawing as applied to architectural problems. Drafting, drawing conventions, presentations, graphic symbols, line quality and context, and free hand drawing. 3 credit hours.

AT 221 Typography I
Prerequisites: AT 122; AT 211; AT 312 or instructor's consent. Studio course examining how type is used in the creation of visual design. The student will gain an understanding of the relationships of language, type and design in the communication of ideas by means of printed material.

AT 222 Typography II
Prerequisite: AT 221 or instructor's consent. A continuation of Typography I with emphasis on practical applications of typographical skills already acquired.

AT 225 Photographic Methods
Prerequisites: AT 209 and AT 210. Technical course for the photography major. Study of camera types, including view camera, photographic optics, film types, sensitometry, photochemistry and zone system. 3 credit hours.

AT 231 History of Art I
Western Art from cave art through the Middle Ages to Gothic. This course seeks to understand expressive, social, cultural, political and economic aspects of the cultures in which specific art styles and visual developments emerged. This course forms the basic vocabulary for History of Art II. Includes economic and technological changes in the societies and their reflections in art. Appropriate for business and engineering students. 3 credit hours.

AT 232 History of Art II
Western Art from the Renaissance to the twentieth century in Europe and America; a continuation of AT 231. 3 credit hours.

AT 233 History of Architecture
A survey of developments in architecture from antiquity to the present day. Special consideration of the aesthetic and practical relationships of architectural space to interior decor. For the major and those interested in this field. 3 credit hours.

AT 302 Figure Drawing
Prerequisite: AT 105 or consent of the instructor. Study of drawing which concentrates on the human figure. 3 credit hours.

AT 304 Sculpture I
The exploration of three-dimensional materials for maximum effectiveness in expressive design. Experimentation with clay, plaster, wood, stone, canvas, wire screening, metal, found objects. A basic understanding of major, fundamental methods: casting and carving. Laboratory Fee. 3 credit hours.

AT 305 Sculpture II
A continuation of AT 304 with further exploration of three-dimensional materials and the possibilities they present for creative visual statements. Laboratory Fee. 3 credit hours.

AT 309 Photographic Design
Prerequisite: AT 313 or AT 314. Introduction to basic materials and techniques of black and white photography used in graphic design. The image as it relates to type and other art work, including posters, advertisements, manuals, etc. Laboratory Fee. 3 credit hours.

AT 310 Photographic Lighting
Lighting techniques, natural and artificial. Control of form, texture and shape by light. Basic portraiture lighting, flash and tungsten lighting equipment, umbrellas, diffusers, etc. 3 credit hours.

AT 311 Color Photography
Theory and practice of color photography. Study of current color photographic materials and processes. 3 credit hours.

AT 315 Printmaking
The expressive potential of the graphic image through the techniques of silkscreen, wood cut, wood engraving, linoleum block-print, collotype, monotype and photo-silkscreening. Problems in black-and-white and color. Laboratory Fee. 3 credit hours.

AT 317 Interior Design
Prerequisites: AT 211 or AT 212; AT 233 or instructor's consent. A basic studio course with exploration of interior design problems and their relationship to architecture. Special emphasis on exploitation of space, form, color and textures for greatest effectiveness. 3 credit hours.

AT 322 Illustration
A solid foundation in the techniques of creative illustration. Various media and their expressive possibilities will be studied; charcoal, pencil, pen and ink, wash, colored pencils, acrylic. Focuses on application of these techniques. 3 credit hours.

AT 330 Film Animation
The basic techniques and concepts of film animation as used in cartooning, titling, advertising and fine art. Students will work individually or in groups on their own animation projects. 3 credit hours.

COURSES

AT 331 Contemporary Art
Focusing on art since 1945. The development of the present stems from ideas emanating from the 1870s—especially Impressionism; this course seeks to understand these connections. Emphasis on economic historical and technological developments. Appropriate for business, communication, history and engineering students. 3 credit hours.

AT 333 Survey of Afro-American Art
Black art in the United States from the Colonial period to the present. Consideration of African cultural influences. Analysis of modern trends in Black art. 3 credit hours.

AT 401 Studio Seminar I
Prerequisites: AT 101-102, AT 201, AT 302 or AT 313, and art electives. Drawing on developments through their previous study, students will concentrate on major projects in the areas of their choice. 1-4 credit hours.

AT 402 Studio Seminar II
Prerequisite: AT 401. Continuation of Studio Seminar I. 1-4 credit hours.

AT 402-412 Topics in the Visual Arts
Variable credit.

AT 599 Independent Study
Prerequisites: consent of the instructor and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1-3 credit hours.

Aviation

Flight training costs are based on rates at university-approved flight training schools. This cost is not included in the university tuition charges and should be paid directly to the flight school.

An asterisk (*) indicates flight training courses which may be completed at any of the university-approved flight training schools in Connecticut. The student must register for these courses at the university in order to receive credit and be eligible for related aviation degree programs.

AE 100 Aviation Science—Private
Basic ground instruction in aircraft systems and controls. FAA regulations, air traffic control, communication, weight and balance, meteorology, navigation, radio facilities and utilization, flight computer and aerodynamic theory. Successful completion of FAA Private Pilot airplane written examination is required. 3 credit hours.

***AE 105 Primary Flight—Solo**
Corequisite: AE 100. Introduction to flight. Concentration on the development of flying skills for solo flight. Course includes ground instruction required for each flight lesson. Minimum flight time requirements: dual instruction—10 hours; ground trainer—20 hours; solo—3 hours; discussion—4 hours. Laboratory Fee. 1 credit hour.

AE 110 Aviation Meteorology
Discussion and interpretation of atmospheric phenomena including an analysis of aviation forecasts and reports. 3 credit hours.

***AE 115 Private Pilot Flight**
Prerequisite: AE 105. Flight training in preparation for private pilot certification. This course includes solo practice of maneuvers to increase proficiency, cross country flying, and flight test preparation. Private pilot certification is required. Minimum flight time requirements: dual instruction—12 hours; solo—13 hours; discussion—8 hours. Laboratory Fee. 2 credit hours.

AE 120 Foundations of Aviation
A study of the development of aviation from the first efforts to fly through the present. The social and economic impact of aviation on society will be explored. 3 credit hours.

AE 130 Aviation Science—Commercial
Prerequisite: AE 100. Advanced ground instruction in navigation, flight computer, radio navigation, aircraft performance, engine operation, aviation physiology and FAA regulations including FAR Parts 121 and 135. Successful completion of FAA. Commercial Pilot airplane written examination is required. 3 credit hours.

***AE 135 Commercial Flight I**
Prerequisite: AE 115. Continuation of flight instruction and practice for the purpose of developing a high degree of judgment and coordination through practice of advanced maneuvers and cross country flights. Minimum flight time requirements; dual instruction—23 hours; solo—40 hours; ground instruction—8 hours. Laboratory Fee. 2 credit hours.

AE 140 Concepts of Aerodynamics
The study of basic aerodynamics including theory of flight, analysis of the four forces, high lift devices, subsonic, transonic and supersonic flight. 3 credit hours.

***AE 145 Commercial Flight II**
Prerequisite: AE 135. Introduction to basic instrument flying and transition into high performance complex single engine aircraft. Additional cross country and night flying practice. Minimum flight time requirements: dual instruction—22 hours; solo—16.2; ground trainer or aircraft (instrument)—7 hours; ground instruction—8 hours. Laboratory Fee. 2 credit hours.

AE 200 Aviation Science—Instrument
Prerequisite: AE 130. Ground instruction in preparation for the FAA Instrument Rating. Study includes a discussion of pertinent regulations, IFR departure, enroute, and arrival procedures, flight planning, instrument approaches, air traffic control procedures and a review of meteorology. Successful completion of FAA Instrument-Airplane written examination is required. 3 credit hours.

***AE 205 Commercial Flight III**
Prerequisite: AE 145. Instrument instruction involving navigation, enroute, holding, and approach procedures. At the completion of this course the student will be qualified for commercial pilot certification as well as instrument pilot rating certification. Commercial and instrument pilot certification is required. Minimum flight time requirements: dual instruction—22 hours; solo—21 hours; ground trainer—3 hours; ground instruction—8 hours. Laboratory Fee. 2 credit hours.

AE 210 Aircraft Powerplants, Systems and Components
Prerequisite: AE 100. Discussion of the fundamentals of design and performance of aircraft engines including methods of construction, lubrication, carburetion, engine operating procedures and control. In addition, the theory of operation and analysis of problems associated with aircraft components and systems, involving reciprocating and jet aircraft. 3 credit hours.

AE 230 Flight Instructor Seminar
Prerequisite: AE 200. Discussion of the fundamentals of instruction with specific emphasis on teaching as related to the flight instructor. Detailed study and analysis of maneuvers and topics required of the flight instructor. In addition, emphasis will be placed on practice teaching. Successful completion of FAA written examinations (Flight Instructor Airplane and Fundamentals of Instructing) is required. 3 credit hours.

***AE 235 Instructor Flight**
Prerequisite: AE 205. Flight instruction flight training in preparation for the FAA Practical Flight Test. Concentration on communication and analysis of maneuvers and procedures. Minimum flight time requirements; dual instruction—15 hours; solo—5 hours; ground instruction—5 hours. Laboratory Fee. 1 credit hour.

***AE 245 Multi-Engine Rating**
Prerequisite: AE 205. Prepares the commercial pilot for the FAA Multi-Engine Rating. Includes discussion of principles of multi-engine flight as well as flight training required for the rating. Multi-engine certification is required. Minimum flight time requirements: dual instruction—approximately 10 hours; ground instruction—approximately 10 hours. 1 credit hour.

AE 310 Air Transportation Management
Prerequisite: senior standing or academic adviser's approval. Discussion of air commerce related to the transportation system. This course includes a study of commercial airlines and fixed-base operations. 3 credit hours.

AE 400 Airport Management
Prerequisite: senior standing or academic adviser's approval. Discussion and study of operational functions of airports, general aviation operations, terminal building utilization, support facilities, public relations and airport financing as related to the airport manager. 3 credit hours.

AE 410 Corporate Aviation Management
Prerequisite: senior standing or approval of academic adviser. Discussion and study of the importance of air transportation to the corporation; operational structure and concepts; cost analysis and budget techniques; aircraft analysis; personnel selection and management; aircraft maintenance; training; and scheduling. 3 credit hours.

AE 430 Aviation Safety Seminar
Prerequisite: senior standing or approval of academic adviser. Critical analysis of aircraft accidents, accident prevention, development and evaluation of aviation safety programs. 3 credit hours.

AE 599 Independent Study
Prerequisite: Consent of the program director. Opportunity for the student, under direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 3 credit hours.

COURSES

Biology and Environmental Science

Biology courses marked with an asterisk (*) are usually scheduled every other academic year. Courses marked with a dagger (†) may be offered at the discretion of the department.

BI 115 Nutrition and Dietetics
The various nutrients, their food sources and the interaction between these nutrients and the body. Nutrition as related to disease. Energy production, weight-loss, weight-gain and normal diets. 3 credit hours.

BI 116 Fundamentals of Food Science
Various methods of food processing, preservation and storage. Sanitation, spoilage and deterioration of foods. Food additives and contaminants. Federal regulatory agencies and food evaluation. 3 credit hours.

BI 121-122 General and Human Biology with Laboratory I and II
An introduction to the study of biology which integrates biological principles and human biology. Major topics covered are bio-chemistry, cell and molecular biology, genetics, anatomy and physiology, behavior, ecology and evolution. The laboratory involves experimentation and demonstration of principles covered in lecture. BI 121 is a prerequisite for BI 122. Laboratory Fee. 4 credit hours each semester.

†BI 125 Evolution
Discussion of the processes responsible for the origin and evolution of life on earth including human beings. 3 credit hours.

***BI 141 Human Ecology**
Understanding human involvement in and alteration of ecosystems through overpopulation, use of resources and pollution. Consideration of economic, cultural and behavioral factors. 3 credit hours.

†BI 151 Animal Behavior
Comparative studies of behavioral patterns of animals. The functional bases for behavioral patterns such as territoriality, reproduction, feeding, migration. Relation of behavior to ecology, evolution, genetics and physiology. 3 credit hours.

†BI 253-254 Biology for Science Majors with Laboratory I and II
A discussion of the principles of biological organization from the molecular level through the ecological. The basic course for biology and environmental studies majors. Laboratory Fee. 4 credit hours each semester.

***BI 301 Microbiology with Laboratory**
Prerequisites: BI 121 or BI 253 and one college course in general chemistry. A history of microbiology and a survey of microbial life. Includes viruses, rickettsia, bacteria, blue-green algae and fungi; their environment, growth, reproduction, metabolism and relationship to man. Laboratory Fee. 4 credit hours.

†BI 302 Bacteriology with Laboratory
Prerequisites: BI 121 or BI 253 and one college course in general chemistry. Theoretical and laboratory study of the morphology, physiology and classification of bacteria. The application of these facts to agriculture, industry, sanitation, public health and disease. Laboratory Fee. 4 credit hours.

***BI 303 Histology with Laboratory**
Prerequisite: BI 121 or BI 253. Microscopic and chemical structure of normal organs and tissues and their cell constituents as related to function. Microscopic observations, tissue staining and slide preparation. Laboratory Fee. 4 credit hours.

***BI 304 Immunology with Laboratory**
Prerequisites: BI 121 or BI 253 and one college course in general chemistry. The nature of antigens and antibodies, formation and action of the latter, other immunologically active components of blood and tissues and various immune reactions. Laboratory Fee. 4 credit hours.

***BI 305 Developmental Biology with Laboratory**
Prerequisite: BI 122 or BI 254. Origin and development of tissues, organs and organ systems during the embryonic and post embryonic stages. In the laboratory, the chick is grown and studied at various stages. Laboratory Fee. 4 credit hours.

***BI 308 Cell Physiology with Laboratory**
Prerequisites: BI 121 or BI 253, one college course in general chemistry and one college course in general physics. Basic theories of physiology as applied to plants and animals. Practical aspects and experimental techniques studied in the laboratory. Laboratory Fee. 4 credit hours.

***BI 310 Vertebrate Anatomy and Physiology with Laboratory**
Prerequisites: BI 121/122 or BI 253/254. Structure and function of vertebrate organ systems with an emphasis on human systems. Laboratory Fee. 4 credit hours.

***BI 311 Genetics**
Prerequisite: BI 121 or BI 253. A survey of modern genetics with an emphasis on classical, human and molecular genetics. Laboratory exercises complement lecture material. Laboratory Fee. 4 credit hours.

***BI 315 Nutrition and Disease**
Prerequisites: BI 115 and either BI 122 or BI 254. Aspects of diet in treating and preventing various symptoms and syndromes, diseases, inherited errors of metabolism and physiological stress conditions. 3 credit hours.

***BI 320 Forensic Medicine**
Prerequisites: BI 122 or BI 253, CH 116, CJ 215. Introduction to the medical-legal aspects of medicine emphasizing the relationship of the natural causes, effects of poisons, sex-offenses, autopsies and estimation of time of death will be covered. History of forensic medicine, its limitations and progress, odontology, malpractice and organ transplants will be discussed. 3 credit hours.

***BI 330 General Ecology with Laboratory**
Prerequisite: BI 122 or BI 254. The interactions of living organisms, including man, with each other and with their environment. Discussion of population regulation, community structure, geo-chemistry and energetics. Laboratory Fee. 4 credit hours.

***BI 340 Biomedical Measurement and Control**
Application of computers and biomedical instrumentation to the measurement and control of biological systems. 3 credit hours.

***BI 421 Toxicology with Laboratory**
Prerequisite: BI 122 or CH 202. The effects of toxicants on living organisms. Mechanisms of action, absorption, distribution, excretion and metabolism. Methods of toxicologic evaluation. 3 credit hours.

†BI 433 Medical Microbiology with Laboratory
Prerequisites: BI 301 or BI 302, CH 115. A study of the more common diseases caused by bacteria, fungi and viruses, including their etiology, transmission, laboratory diagnosis and control. Laboratory Fee. 4 credit hours.

***BI 461-462 Biochemistry I and II with Laboratory**
Prerequisites: CH 201, CH 202, CH 203 and CH 204. A survey of biochemistry including a discussion of pH, buffers, water, bioenergetics, oxidative phosphorylation, enzymology, metabolic regulation, and the structure, function and metabolism of carbohydrates, proteins, lipids, nucleic acids, vitamins and cofactors. Laboratory exercises are primarily designed to concentrate on various experimental techniques including electrophoresis, chromatography, spectrophotometry, centrifugation and enzymology. Laboratory Fee. 8 credit hours.

***BI 502 Fresh Water and Marine Ecology**
Prerequisite: BI 330. The ecology of lakes, rivers, estuaries and the oceans. Laboratory involves extensive field work. Laboratory Fee. 4 credit hours.

***BI 510 Environmental Health**
Prerequisites: BI 310 and CH 110. The emphasis is on the health effects of environmental and occupational pollutants and on the spread and control of communicable diseases. Toxicological and epidemiological techniques are discussed. 3 credit hours.

†BI 517-518 Biotechniques with Laboratory
Prerequisites: BI 253, CH 115, junior or senior status biology or chemistry major. The theory and practice of research techniques used in the biological sciences. Laboratory Fee. 8 credit hours.

***BI 519 Pharmacology with Laboratory**
Prerequisites: BI 122 or BI 361 or CH 302. Science of medicinals and other chemicals and their effects produced by use and abuse on living organisms, and the mechanisms whereby these effects are produced. Relation of structure to activity, methods of assay and metabolic pathways involved. Laboratory Fee. 4 credit hours.

†BI 524 Psychobiology
Prerequisites: P 111, BI 122, CH 116. A study of the biological factors of behavior, with concepts drawn from numerous related disciplines such as physiology, pharmacology, ethnology, ecology, anthropology, psychology and biochemistry. 3 credit hours.

†BI 561-562 Advanced Biochemistry
Prerequisite: BI 362. An in-depth discussion of current topics in biochemistry and molecular biology. 6 credit hours.

COURSES

BI 590 Special Topics in Biology/Science
A course designed to discuss topics in biology or science which are of special or current interest. 1 to 4 credit hours.

BI 591-592 Seminar
Prerequisite: biology major in junior or senior year. Meetings are held one hour weekly during which a research paper is reviewed by a member of the class. Each student, with his adviser, must select an article in a biological periodical from which is developed a 20-minute discourse on its content. 2 credit hours.

BI 595-596 Laboratory Research
Prerequisites: biology major, consent of the department. Choice of a research topic, literature search, planning of experiments, experimentation and correlation of results in a written report, under the guidance of a department faculty member. Three hours of work per week required per credit hour. Laboratory Fee. 1-6 credit hours.

BI 599 Independent Study
Prerequisites: biology major, consent of the department. Weekly conferences with adviser. Three hours of work per week required per credit hour. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. A written report of the work carried out is required. 1-3 credit hours, maximum of 6.

Business Law

LA 101 Business Law I
Introductory overview of the development of common, statutory and constitutional law and the underlying social and economic policies thereof. The nature, functions and limitations of law and the legal system in the resolution of a controversy as it relates to business activity with particular attention to contract law. 3 credit hours. For non-accounting or non-finance majors.

LA 111 Business Law I
Law of contracts, negotiable instruments, sales, insurance. Particular attention will be devoted to applicable provisions of the Uniform Commercial Code. 3 credit hours.

LA 112 Business Law II
Prerequisite: LA 111. Law of agency, employer/employee, partnerships, corporations, security and governmental regulation, real and personal property law, creditors rights and bankruptcy, wills and trusts. 3 credit hours.

Chemistry

The chemistry courses marked with an asterisk (*) may, at times, be scheduled in the evening. Chemistry courses marked with a dagger (†) are offered at the discretion of the department.

CH 103 Introduction to General Chemistry
An introductory course for students without a high school chemistry background. The course deals with inorganic chemistry, elements, compounds, balancing equations, stoichiometry, nomenclature, chemical bonding, the periodic table, and solutions. CH 104 is taken concurrently with CH 103. 3 credit hours.

CH 104 Introduction to General Chemistry Laboratory
To be taken with CH 103. Experiments include the measurement of physical properties, determination of percentage of composition and chemical formulas, reactions of representative elements, ionic reactions and the quantitation of acids and bases. Laboratory Fee. 1 credit hour.

***CH 107 Elementary Organic Chemistry**
Prerequisite: CH 103, CH 104 or CH 115, CH 117 or consent of the department. A one-semester introduction to one of the major fields of chemistry designed for students not majoring in chemistry. Nomenclature, structure and the principal reactions of aliphatic and aromatic organic chemistry will be studied. 3 credit hours.

***CH 108 Elementary Organic Chemistry Laboratory**
Prerequisite: CH 103, CH 104 or CH 115, CH 117 or consent of the instructor. A laboratory course designed to accompany CH 107. The principal operations of organic synthesis such as refluxing, distillation, filtration and crystallization, are studied and applied in a number of simple preparations. Laboratory Fee. 1 credit hour.

†CH 109 Consumer Chemistry
Prerequisite: CH 103 or consent of the instructor. This is a general course dealing with the physical and chemical properties of substances used daily such as paints, plastics, cosmetics, vitamins, antibiotics, hormones and poisonous substances. 3 credit hours.

***CH 110 Environmental Chemistry**
Prerequisite: CH 115, CH 117 or consent of the instructor. A survey of the principal environmental contaminants and pollutants of air and water, including heavy metals, radioactive particles, insecticides, detergents and others. Chemistry sufficient to understand the properties of these materials and possible routes to their control will be introduced. 3 credit hours.

CH 115 General Chemistry I
Prerequisite: CH 103 or one unit of high school chemistry or written qualifying exam. Brief review of fundamentals including stoichiometry and chemical bonding. Thermochemistry, electrochemistry, nuclear chemistry, gases, and introduction to inorganic chemistry and coordination compounds. CH 117 is taken concurrently with CH 115. 3 credit hours.

CH 116 General Chemistry II
Prerequisites: CH 115, CH 117. Rates of chemical reactions; chemical equilibria including pH, acid-base, common ion effect, buffers, and solubility products; thermodynamics; an introduction to organic and biochemistry. CH 118 is taken concurrently with CH 116. 3 credit hours.

CH 117 General Chemistry I Laboratory
To be taken with CH 115. Experiments include stoichiometry and basic physical chemistry experiments in thermochemistry and electrochemistry. Oxidation-reduction reactions, corrosion chemistry, and coordination chemistry. Laboratory Fee. 1 credit hour.

CH 118 General Chemistry II Laboratory
To be taken with CH 116. Experiments include the quantitative measurement of chemical rates and ionic equilibrium constants. The common ion effect, pH and buffers are investigated. The course concludes with an organic synthesis. Laboratory Fee. 1 credit hour.

†CH 120 Chemistry of Addicting and Hallucinogenic Drugs
Prerequisite: CH 103 or consent of the instructor. The properties, dosages, preparation and reactions of the addicting and hallucinogenic drugs. Alcohol, caffeine, nicotine, sedatives, stimulants, tranquilizers, LSD, mescaline, cannabis, narcotics and antidepressants. 3 credit hours.

COURSES

CH 201-202 Organic Chemistry I and II
Prerequisite: CH 116, CH 118. The common reactions of aliphatic and aromatic chemistry with emphasis on functional groups and reaction mechanisms. CH 203 and CH 204 are taken concurrently with CH 201-202. 6 credit hours.

CH 203-204 Organic Chemistry I and II Laboratory
To be taken with CH 201-202. The techniques, reactions, and syntheses commonly employed in the organic chemistry laboratory are covered. Laboratory Fee. 2 credit hours.

***CH 211 Quantitative Analysis with Laboratory**
Prerequisites: CH 116, CH 118. Theory and laboratory training in the preparation of solutions, volumetric, gravimetric, and spectrophotometric methods of analysis. Analysis of ores and ion-exchange chromatography. Laboratory Fee. 4 credit hours.

***CH 221 Intrumental Methods of Analysis with Laboratory**
Prerequisites: CH 211, CH 201, CH 203. The theory of various instrumental methods, including visible, ultraviolet and infrared spectroscopy, gas chromatography, potentiometry, mass spectrometry and nuclear magnetic resonance spectroscopy. Laboratory identification of compounds by the methods discussed in the lectures. Laboratory Fee. 4 credit hours.

†CH 321-322 Plastics and Polymer Chemistry I and II
Prerequisites: CH 116, CH 118, CH 202, CH 204. All phases of the plastics and polymers field, including the chemistry involved, methods of production, physical properties and the uses of specific polymers. 6 credit hours.

***CH 331-332 Physical Chemistry I and II**
Prerequisites: CH 116, PH 205, M 203 (may be taken concurrently). Kinetic theory of gases, thermodynamics, phase equilibria, transport and surface phenomena, kinetics, quantum mechanics, atomic and molecular spectroscopy.

CH 333-334 Physical Chemistry I and II Laboratory
To be taken with CH 331-332. Laboratory training in vacuum line techniques and real time collection of temperature, pressure and spectrophotometric data by microcomputer. Experiments include: diffusion, velocity and heat capacities of gases; calorimetry; phase diagrams of mixtures; electro-chemical properties, kinetics of fast reactions, enzyme and oscillating reactions; rotational-vibrational spectroscopy.

***CH 351 Qualitative Organic Analysis with Laboratory**
Prerequisite: CH 202, CH 204, CH 221. A one-semester laboratory course dealing with the systematic identification of organic compounds. Specific methods include wet analysis, derivatization, and physical analysis such as refractometry and molecular spectroscopy. Laboratory Fee. 4 credit hours.

CH 411 Chemical Literature
Prerequisites: CH 202, CH 204, CH 332. Acquaints the student with the chemical literature and its use. Assignments include library searches and the presentation of a short seminar on a special topic approved by the faculty. 1 credit hour.

CH 412 Seminar
Prerequisite: CH 411. The student researches a specific current topic in chemical research or applied chemistry and presents a term paper and a formal full-length seminar to the faculty and students. 1 credit hour.

†CH 441 Analytical Chemistry with Laboratory
Prerequisite: CH 221. Corequisite: CH 332. Application of instrumental methods to inorganic and organic methods of analysis not covered in CH 221, including mass, ultraviolet and infrared spectrophotometry, chromatography and electrochemical analysis. Application of on-line digital computers to chemical analysis. 4 credit hours.

CH 451 Thesis
Prerequisites: CH 202, CH 204, CH 211, CH 221, CH 332. An original investigation in the laboratory or library under the guidance of a member of the department. A final thesis report is submitted. Laboratory Fee. 2 credit hours.

CH 471 Industrial Chemistry
Prerequisites: CH 202, CH 211, CH 221, CH 332. A course to bridge the gap from the academic to the industrial world. Topics include material accounting, energy accounting, chemical transport, reactor design, process development and control. 3 credit hours.

***CH 501 Advanced Organic Chemistry I**
Prerequisites: CH 202, CH 204. This course deals with topics such as chemical bonding and molecular structure, investigation of mechanism, nucleophilic substitution, electrophilic aromatic substitution, eliminations, symmetry controlled reactions, and Hammett plots. 3 credit hours.

***CH 502 Advanced Organic Chemistry II**
Prerequisites: CH 202, CH 204. The course deals primarily with synthetic organic chemistry and includes oxidation, reduction, alkylation, addition, substitution, and multistep syntheses. 3 credit hours.

***CH 521 Advanced Inorganic Chemistry I**
Prerequisite: CH 331. Corequisite: CH 332. The chemistry of coordination compounds: molecular and electronic structures, stereochemistry, valence bond, ligand field, and molecular orbital theories, thermal and photochemical reactions and mechanisms. 3 credit hours.

***CH 522 Advanced Inorganic Chemistry II**
Prerequisite: CH 331. Corequisite: CH 332. The chemistry of the main group elements, lanthanides, and actinides: bonding, structure and properties, synthesis, acid-base theories, crystal structures, cage and cluster compounds. 3 credit hours.

CH 523-524 Advanced Inorganic Chemistry I and II Laboratory
Corequisites: CH 521, CH 522. Experiments are performed in conjunction with material presented in CH 521 and CH 522. Included are inorganic syntheses, resolution of diastereomers, conductance measurements, determination and interpretation of infrared, ultraviolet, mass, and nuclear magnetic resonance spectra of inorganic compounds, and photochemistry. Laboratory Fee. 2 credit hours.

†CH 533 Advanced Physical Chemistry
Prerequisite: CH 332. Emphasis on the fundamentals of quantum mechanics, statistical mechanics, molecular bonding theory and spectroscopy. 3 credit hours.

†CH 561 Chemical Spectroscopy
Prerequisite: CH 332. Introduction to the elementary theory with emphasis on techniques and interpretation of data obtained in applications of infrared, Raman, visible, ultraviolet, nuclear quadrupole, electron spin and nuclear magnetic resonance spectroscopy to the solution of chemical problems. 3 credit hours.

CH 599 Independent Study
Prerequisite: instructor's consent. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course may be used to do preliminary work on the topic studied for Thesis (CH 451). 1-3 credit hours.

Chemical Engineering

CM 201 Fundamentals of Chemical Engineering I
Prerequisites: CH 116, M 117, PH 150. An introduction to the profession of chemical engineering and the application of fundamental chemical, physical, and mathematical concepts to the solution of chemical engineering problems. Material balances and principles of stoichiometry are used to solve problems encountered in the field. 3 credit hours.

CM 202 Fundamentals of Chemical Engineering II
Prerequisite: CM 201. A continuation of CM 201 with emphasis on the use of energy balances for both non-reactive and reactive processes. Combined material and energy balances are used in solving a variety of chemical engineering problems. 3 credit hours.

CM 301 Transport Phenomena Analysis
Prerequisites: M 204, CM 202. A unified treatment of the fundamentals of momentum and heat transfer with an introduction to mass transfer. Use of microscopic and macroscopic balances, continuity and Navier-Stokes principles to develop mathematical models of physical systems with applications in fluid mechanics and thermal energy transport. 3 credit hours.

CM 310/410 Transport Operations I and II with Lab
Prerequisites: CM 301, CM 311. Application of transport phenomena principles to systems involving momentum heat and mass transfer with emphasis on equipment design. Topics include design of piping systems, flow instruments, filters, heat exchangers, evaporators, staged separation equipment and others of current interest. Laboratory work includes experiments in fluid flow, heat transfer and mass transfer, computer simulation, oral and written reports. 4 credit hours each.

CM 311 Chemical Engineering Thermodynamics
Prerequisite: CH 331 or ME 301. Applications of the first and second laws of thermodynamics to batch and flow processes important in chemical engineering for homogeneous and heterogeneous systems, mixtures and pure materials. Topics include phase and chemical equilibria, chemical reactions, thermochemistry, thermodynamic properties, miscibility, potential functions, molecular theory, and statistical thermodynamics. 3 credit hours.

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CM 321 Reaction Kinetics and Reactor Design
Prerequisites: CM 311, M 204. Homogeneous and heterogeneous catalyzed and noncatalyzed reaction kinetics for flow and batch chemical reactors. Application of kinetic data to both isothermal and nonisothermal reactor design. This course is intended for both chemists and chemical engineers. 3 credit hours.

CM 401 Mass Transfer Operations
Prerequisites: CM 311, ME 404, ME 421. Fundamentals of mass transfer and diffusion applied to distillation, extraction, gas absorption, humidification, drying, and other unit operations. Theory and application of phase equilibria and stage operations for binary and multicomponent systems. Use of equilibrium stage and transfer unit concepts in design of mass transfer processes. 3 credit hours.

CM 420 Process Design Principles
Prerequisites: CM 301, 310, 311, 321, 410. Study and application of principles needed in the design of process systems. Topics include: cost estimation; hazard and safety analysis; ethical concerns; preliminary design techniques; optimization; computer-aided design; alternative designs and technical reports. Methods include team and individual assignments, oral and written presentations. 3 credit hours.

CM 421 Plant and Process Design
Prerequisites: CM 401, IE 204 and senior standing. Design of chemical plants and process equipment applying the principles of unit operations and processes, thermodynamics, kinetics, and economics. Emphasis is placed on process flow sheet development, equipment selection, process operating conditions, cost estimation, economic analysis, design strategy and optimization. 3 credit hours.

CM 431 Process Dynamics and Control with Laboratory
Prerequisites: EE 211, M 204. Fundamental principles of chemical process dynamics used in the measurement and control of process variables such as temperature, pressure, and flow rate. Linear and non-linear control theory and stability analysis techniques such as root locus and frequency response are presented. Laboratory exercises include design, assembly and testing of fluid level, temperature and concentration control, control of distillation column by computer. 4 credit hours.

Civil Engineering

CE 201 Statics
Prerequisites: PH 150, M 117. Composition and resolution of forces in two and three dimensions. Equilibrium of forces in stationary systems. Analysis of trusses. Centroids and second moments of areas, distributed forces and friction. 3 credit hours.

CE 202 Strength of Materials I
Prerequisite: CE 201. Elastic behavior of structural elements under axial, flexural and torsional loading. Shear and bending moment diagrams. Stress in and deformation of members, including beams. 3 credit hours.

CE 203 Elementary Surveying
Prerequisite: M 115 or permission of instructor. Theory and practice of surveying measurements using tape, level and transit. Field practice in traverse surveys and leveling. Traverse adjustment and area computations. Adjustment of instruments, error analysis. Laboratory Fee. 3 credit hours.

CE 206 Engineering Geology
Prerequisites: E 110, M 117. Introduction to relationship between geologic processes and principles to engineering problems. Topics include engineering properties of rock as a construction and foundation material, soil formation and soil profiles and subsurface water. 3 credit hours.

CE 301 Transportation Engineering
Prerequisites: E 110, M 117. A study of planning, design and construction of transportation systems including highways, airports, railroads, rapid transit systems and waterways. 3 credit hours.

CE 302 Building Construction
Prerequisite: E 110. Introduction to the legal, architectural, structural, mechanical and electrical aspects of building construction. Principles of drawing and specification preparation and cost estimating. 3 credit hours.

CE 304 Soil Mechanics
Prerequisites: M 203, CE 202. Geological process of soil formation. Soil classifications. Physical properties are related to the principles underlying the potential behavior of soils subjected to various loading conditions. Methods of subsurface exploration. Laboratory demonstrations. 3 credit hours.

CE 306 Hydraulics
Prerequisite: ME 204. The mechanics of fluids and fluid flow. Fluid statics, laminar and turbulent flow. Impulse and momentum. Flow in pipes and open channels. Orifices and weirs. 3 credit hours.

CE 312 Structural Analysis
Prerequisites: CE 202; CS 102. Basic structural engineering topics on the analysis of beams, trusses and frames. Topics include load criteria and influence lines; force and deflection analysis of beams and trusses; analysis of indeterminate structures by approximate methods, superposition and moment distribution. Framing systems of existing structures are studied. Computer applications. 3 credit hours.

CE 315 Environmental Engineering and Sanitation
Prerequisites: E 110, CH 116, CH 118, M 118. Introduction to hydrology; population and water demand projections; water and wastewater transport systems. Problems concerning public health, water and wastewater treatment, solid waste disposal, air pollution, and private water supply and sanitary disposal systems. 3 credit hours.

CE 316 Code Administration
Study of codes and regulations prepared and enacted for the public and employee safety along with the codes and regulations implemented to develop a uniform and balanced land development and usage program. Health codes, labor laws, zoning regulations, planning regulations and wetlands regulations are discussed. 3 credit hours.

CE 317 Structural Design Fundamentals
Prerequisites: CE 312, CS 102. Fundamentals of structural behavior of members, connections and structural systems of steel and concrete. Effect on members of a variety of loading conditions varying from dead load through overloads producing failure. Compute applications. 3 credit hours.

CE 320 Civil Engineering Practice
Prerequisite: second semester junior or first semester senior status. Students are exposed to actual engineering projects by visiting an engineering office during the semester on a regular schedule. 1 credit hour.

CE 323 Mechanics and Structures Laboratory
Prerequisite: CE 312 (may be taken concurrently). Experiments covering mechanics and structural engineering. The response of metals and wood to different loading conditions will be examined. Laboratory instrumentation will be studied. Laboratory procedures, data collection, interpretation and presentation will be emphasized. Laboratory Fee. 2 credit hours.

CE 325 Project Planning and Scheduling
Prerequisite: M 117. Application of network analogy, critical path method, program evaluation review technique, precedence diagrams and analog charts to planning, scheduling, and controlling construction projects. Computer applications. 3 credit hours.

CE 326 Computer Applications in Civil Engineering
Prerequisites: CE 304, CE 306, CE 317 which may be taken concurrently; CS 102. The development and evaluation of software for the solution of civil engineering problems. 3 credit hours.

CE 327 Soil Mechanics and Concrete Laboratory
Prerequisite: CE 304 (may be taken concurrently). Experiments and testing in the areas of soil mechanics and concrete. Laboratory procedures, data collection and interpretation, and presentation of data will be emphasized. Laboratory Fee. 2 credit hours.

CE 328 Hydraulics and Environmental Laboratory
Prerequisites: CE 306 and CE 315 (may be taken concurrently). Experiments and testing in the areas of hydraulics and environmental engineering. Laboratory procedures, data collection and interpretation, presentation of data will be emphasized. Laboratory Fee. 2 credit hours.

CE 401 Foundation Design and Construction
Prerequisite: CE 304 or instructor's consent. Application of soil mechanics to foundation design, stability, settlement. Selection of foundation type—shallow footings, deep foundations, pile foundations, mat foundations. Subsurface exploration. 3 credit hours.

COURSES

CE 402 Water Resources Engineering
Prerequisites: CE 306, CE 315. Study of principles of water resources engineering including surface and ground water hydrology. Design of water supply, flood control and hydroelectric reservoirs. Hydraulics and design of water supply distribution and drainage collection systems including pump and turbine design. Principles of probability concepts in the design of hydraulic structures. General review of water and pollution control laws. 3 credit hours.

CE 403 City Planning
Prerequisite: E 110. Engineering, social, economic, political and legal aspects of city planning. Emphasis placed on case studies of communities in Connecticut Zoning. Principles and policies of redevelopment. 3 credit hours.

CE 404 Sanitary Engineering
Prerequisites: CE 306, CE 315. Study of physical, chemical and biological aspects of water quality and pollution control. Study of unit processes and operations of water and waste water treatment including industrial waste and sludge processing. Design of water treatment and sewage treatment systems including sludge treatment and incineration. 3 credit hours.

CE 405 Indeterminate Structures
Prerequisites: ME 307 or CE 312; CS 102, ME 204. The analysis of statically indeterminate structures. Topics include approximate methods, moment distribution, conjugate beam, energy methods, influence lines and an introduction to matrix methods. Computer applications. 3 credit hours.

CE 407 Professionalism and Ethical Practice of Engineering
Prerequisite: Senior status, or permission of instructor. Principles of engineer-client, engineer-society and owner-contractor relationships examined from ethical, legal and professional viewpoints. Examination of codes of ethics and preparation of contract documents. 3 credit hours.

CE 408 Steel Design and Construction
Prerequisite: CE 317. Analysis, design and construction of steel structures. Topics include tension, compression and flexural members; connections; members subjected to torsion; beam-columns; fabrication, erection and shop practice. 3 credit hours.

CE 409 Concrete Design and Construction
Prerequisite: CE 317. Analysis and design of reinforced concrete beams, columns, slabs, footings, retaining walls. Basic principles of prestressed and precast concrete. Fundamentals of engineering drawings. 3 credit hours.

CE 410 Land Surveying
Prerequisite: consent of instructor. A study of boundary control and legal aspects of land surveying, including deed research, evidence of boundary location, deed description and riparian rights. Theory of measurement and errors, position precision, state plane coordinate systems, photogrammetry. 3 credit hours.

CE 411 Highway Engineering
Prerequisite: CE 301 or instructor's consent. Highway economics and financing. Study of highway planning, geometric design and capacity. Pavement and drainage design. 3 credit hours.

CE 412 Wood Engineering
Prerequisite: CE 202. Study of the growth and structure of wood and their influence on strength and durability, preservation and fire protection. The analysis and design of structural members of wood including beams, columns, and trusses; connections; glulam and plywood members. The design of wood structures. 3 credit hours.

CE 413 Masonry Engineering
Prerequisite: CE 202. The design and analysis of brick and concrete masonry non-reinforced and reinforced structures. Strength, thermal, fire and sound characteristics, testing and specifications. 3 credit hours.

CE 414 Route Surveying
Prerequisite: CE 203. A continuation of elementary surveying covering principles of route surveying, stadia surveys, triangulation, trilateration, practical astronomy, aerial photography, adjustment of instruments. Field problems related to classwork and computer application to surveying problems. Computer Use Fee. 3 credit hours.

CE 501 Senior Project
Prerequisite: senior status. Supervised individual or group project. The project may be the preparation of a set of contract documents for the construction of a civil engineering facility, research work with a report, or a project approved by the faculty adviser. Computer Use Fee. 3 credit hours.

CE 599 Independent Study
Prerequisites: consent of instructor and chairman of department. Opportunity for the student to explore an area of interest under the direction of a faculty member. Course must be initiated by the student and have the approval of the faculty adviser and chairman. 1-3 credit hours.

Communication

CO 100 Human Communication
The basic course in communication. Objectives are to create within each student an awareness of the omnipresence of communication and the problems surrounding the human communication process. Recommended for all UNH students, regardless of major field of study. 3 credit hours.

CO 101 Fundamentals of Mass Communication
Prerequisite: CO 100. An introduction to the mass media of newspapers, film, magazines, radio, television, trade publications and public relations. Course emphasizes media's impact upon society. 3 credit hours.

CO 103 Audio in Media
Concerned with sound as used in radio, television and film. The course entails lectures, demonstration, and lab practice of sound production and transmission. Laboratory Fee. 3 credit hours.

CO 109 Communication for Management and Business
Practical course intended to develop the presentational skills of students interested in management and business. 3 credit hours.

CO 114 Production Fundamentals
Introduction to theory and technique in sound, video, film and print media. Several team projects will provide a fundamental production orientation in each medium as well as provide the environment to discuss goals and objectives of production. 3 credit hours. Laboratory Fee.

CO 200 Theories of Group Communication
Prerequisite: CO 100. Theoretical aspects of communication which affect the accomplishment of group tasks, and techniques of observation of group processes, particularly within the framework of media production crews. 3 credit hours.

CO 203 Radio Production
Prerequisite: CO 103. Theory and practice of techniques involved in the function and operation of a radio station. Microphone techniques, engineering operations, transmitter readings, logging and programming will be included. Laboratory Fee. 3 credit hours.

CO 208 Introduction to Broadcasting
General survey and background of broadcasting, cable, pay and premium TV services and new technologies. Current changes, law, regulation, financing and public input are examined. Emphasis is placed on current status and future potential of these industries. 3 credit hours.

CO 205 Intercultural Communication
A theoretical and practical survey of intercultural communication processes. This course is concerned with the interpersonal dimensions of intercultural communication and will examine the distinctive cultural orientations, behaviors, expectations, and values, that effect communication situations. 3 credit hours.

CO 212 Television Production I
Prerequisites: CO 103, CO 208. Introduction to the mechanics, techniques, and aesthetic elements of television production. This course provides the basic grounding in the art and craft of the medium. Laboratory Fee. 3 credit hours.

CO 214 Elements of Film
Prerequisite: CO 101 or permission of the instructor. Stresses the understanding of film as a creative form of communication. Student is introduced to basic techniques of motion picture production through lectures, audio-visual activity, and small group involvement. Laboratory Fee. 3 credit hours.

CO 220 Film Production I
Prerequisites: CO 103, CO 214. Involves the transformation of an original idea into film: Initial analysis, proposed treatment plan, sequencing, film scripting, pre-production planning, nature of the production process. A short film is produced through team effort. Laboratory Fee. 3 credit hours.

CO 300 Persuasive Communication
Prerequisite: CO 100. An examination of the theories of persuasive communication including the influence and effect of communication on the rhetoric of politics, religion, advertising, etc. 3 credit hours.

COURSES

CO 302 Social Impact of Media
Prerequisite: CO 101. Examines such problems as regulatory control of the media, law and ethics, and the behavioral aspects of mass and interpersonal communication. Students examine the variety of media writing and commence writing their own media messages. 3 credit hours.

CO 307 Writing for the Media
Prerequisite: CO 208. A study of drills and exercises in writing television and radio news, drama, public service announcements, and film documentaries. Emphasis is placed on first-hand practical experience assignments and criticism of complete copy. 3 credit hours.

CO 308 Broadcast Journalism
Prerequisite: CO 307. Entails practice in newsgathering, editing, writing, and use of news services and sources. Creating documentary and special event programs through film for television news, on-the-spot film, and video-tape reporting are included. 3 credit hours.

CO 309 Public Relations Writing
This course examines the elements of good writing as applied to the public relations field. Students will research and identify general and specialized audience needs and create messages to satisfy those needs. They will plan and execute projects within selected media such as newspapers, magazines, TV, radio and film, as well as speeches for public appearances. 3 credit hours.

CO 310 Pictorial Journalism
The study of photography and media design as an active observation and interpretation of events in the print media. 3 credit hours.

CO 312 Television Production II
Prerequisite: CO 212. An intermediate course designed to provide the student with the opportunity to coordinate the many areas of TV production. Video tape and live production techniques are employed. Laboratory Fee. 3 credit hours.

CO 317 Advanced Writing for the Media
Prerequisite: CO 307. Planning and writing longer forms of scripts, emphasizing documentary and dramatic writing for production. 3 credit hours.

CO 320 Film Production II
Prerequisite: CO 220. The creative process involved in translating advertising copy to film based upon advertising objectives and consumer motivation, appeals, and behavior. Involves production of filmed "spots" by team efforts. Laboratory Fee. 3 credit hours.

CO 340 The History of Film
A survey of the historical development of the film medium consisting of lectures, discussions and the screening of films which demonstrate the interrelationships between the historical development and the establishment of the film medium as a powerful communicative art form. 3 credit hours.

CO 399 Media Campaigns
This course will examine the role played by the mass media in political campaigning. Students will look at the historical perspectives and study current trends. FCC laws regarding advertising, lowest unit cost, section 315 and other regulations will be examined. Students will view videotapes of past political media campaign examples and will have the opportunity to participate in and produce hypothetical political media campaigns. 3 credit hours.

CO 400 Communications in Organizations
Communication will be examined in formal organizational contexts such as school, industry, hospitals and government. Students will be prepared to function more effectively in organizations' dynamic communication systems, and to solve problems relative to the interaction of organizations with the environment via the interactions of people and messages. 3 credit hours.

CO 402 Internship
An internship program for students who qualify and would like an in-field experience at local radio stations, television stations, advertising agencies, etc. 3 credit hours.

CO 408 Public Relations—Systems and Practices
The objective of this course is to make students aware of the depth and sensitivity of the role public relations plays in today's business environment. This course will serve to orient the students to possible career paths utilizing communication, journalistic and management skills as well as skills acquired in business and English courses. This course will utilize the lecture/discussion, case study and guest speaker approach to teach all students the historical, theoretical, practical and technical applications of public relations. 3 credit hours.

CO 410 Management Communication Seminar
Open to all upper division students, regardless of major. Involves structure and function of communication in organizations. Practice in understanding and managing interpersonal differences. Emphasizes concepts and principles needed for effective management of organizational communication processes. 3 credit hours.

CO 412 Advanced Television Production
Prerequisite: CO 312. Essentials of budgeting, marketing and regulatory policies and rules. Production teams are formed to produce sophisticated local television programs under close supervision. 3 credit hours.

CO 415 Broadcast Management
Prerequisite: CO 208. Involves the administrative and personnel problems of television and radio studio management; broadcast engineering; local sales; continuity; and programming. Discussions will include scheduling and the development of facilities. 3 credit hours.

CO 416 International Broadcasting
TV and radio broadcasting policy, operations, broadcast economics and programming around the world will be examined, compared and contrasted with those in the United States. The journalistic process and entertainment programming in several countries will be explored. 3 credit hours.

CO 440-454 Special Topics
Special topics in communication which are of special interest or current interest. 3 credit hours.

CO 500 Seminar in Communication Studies
This capstone course will integrate the current and developing trends with the individual student's interest and perspectives. Students will present for discussion and examination issues of interest within a unifying theme. 3 credit hours.

CO 599 Independent Study in Communication
Prerequisite: consent of faculty member and chairman of department. 3-6 hours are usually reserved for a senior project-paper in communication; student may take 1-3 credit hours of CO 599 per semester with a maximum of 6. Independent study credits earned in other departments are applied toward the maximum of 6 in communication. Opportunity for the student under the direction of a faculty member to explore an area of interest. 1-3 credit hours.

Computer Science

CS 102 Introduction to Programming/FORTRAN
Prerequisite: M 115. A first course in computer programming using the FORTRAN language, for engineering and science students. Problem solving methods and algorithm development. Designing, coding, debugging and documenting FORTRAN programs using good programming style. 3 credit hours.

CS 104 Programming in RPG
An introductory course for management information systems majors that will familiarize the student with an interactive programming environment, and with the most common types of report programs required in a business environment. Emphasis will be on the applications of computers in business. The language RPG will be used to illustrate the concepts of input, output, data processing and reports. Several programs will be written. 3 credit hours.

CS 105 Introduction to Programming/COBOL
Prerequisite: M 109 and either CS 104 or CS 108. A first course in computer programming using the COBOL language, for business data processing majors. Problem-solving methods and structured programming style. Designing, coding, debugging and documenting COBOL programs. Student programs will be oriented toward business problems. 3 credit hours.

CS 106 Introduction to Programming/Pascal
Prerequisite: M 115 or equivalent. A first course in computer science using the Pascal language, for computer science majors and minors. Introduces problem solving methods and algorithm development and teaches how to design, code, debug and document programs using good style. 3 credit hours.

CS 107 Introduction to Data Processing
An introduction the concepts underlying the modern application of computer systems. Current technology and social issues are considered. Simple programming is done in the BASIC language. Intended for business and humanities students taking only one computer course or as a basis for further work with computers. Not to be taken for credit by majors. 3 credit hours.

CS 108 Introduction to Programming/BASIC
An introductory course for non-computer science majors. The student will become familiar with computers and write several programs in the BASIC language. Emphasis will be on problems drawn from everyday life. Not to be taken for credit by CS majors. 3 credit hours.

COURSES

CS 224 Advanced Programming/ FORTRAN

Prerequisite: CS 102 or CS 228. Continues to develop program design techniques, especially involving larger and more complex problems. Simple data structures. Modular program design. Advanced debugging techniques. Programming problems will involve typical engineering applications. Not to be taken for credit by CS majors. 3 credit hours.

CS 225 Advanced Programming/COBOL

Prerequisite: CS 105 or CS 229. Continues to develop program design techniques and apply them to increasingly complex business oriented problems. Topics include using COBOL interactivity, tables, the sort-merge utility, subroutines, advanced debugging. Not to be taken for credit by CS majors. 3 credit hours.

CS 226 Data Structures and Algorithms I

Prerequisite: CS 106 or CS 227. Objectives are to continue to develop program design techniques and apply them to more complex problems. Data structures: linked lists, stacks, trees. String processing. Recursion. Debugging technique. Programming problems will be oriented toward systems programming. 3 credit hours.

CS 227 Intensive Pascal

Prerequisite: M 109 or equivalent and competency in COBOL, FORTRAN or PL/1. Objectives: to teach the syntax and idiosyncrasies of the Pascal language. An introduction to the Pascal language for competent programmers, which will prepare them for CS 226. Covers all the material of CS 106, but at an accelerated rate. Intended for students who transfer into one of the computer science programs. Not to be taken for credit by a student with credit for CS 106. 1 credit hour.

CS 228 Intensive FORTRAN

Prerequisite: CS 226 or equivalent. An introduction to FORTRAN programming by analogy to Pascal. Covers the material of CS 102 at an accelerated rate. 1 credit hour.

CS 230 Introduction to Systems Programming/C & UNIX

Prerequisite: CS 226. The C language is introduced and used for programming exercises of a non-numeric, systems-oriented nature. Topics covered include bit-manipulation, string processing, data compaction, the interface between C and UNIX, etc. 2 credit hours.

CS 234 Machine Organization/ Assembly Language

Prerequisite: CS 224 or 225 or 226. Study of the functional characteristics of computers and their peripherals. Programming in assembly language. Topics: data representation, error flags, addressing techniques, macros, file I/O, program linkage, interrupts. 3 credit hours.

CS 237 Data Structures and Algorithms II

Prerequisite: CS 226. The following topics are covered: data structures—trees, graphs, hash tables. Recursive techniques—divide and conquer, backtracking, recursion elimination. Algorithms—sorting, searching, garbage collection, storage management, shortest paths, parsing. Analysis of the complexity of algorithms. The required programming will be done in Pascal. 3 credit hours.

CS 310 Computing Theory

Prerequisites: CS 237 and M 270. Central topics in the theory of computers and computation. Topics include: introductions to algebraic methods, proof procedures, and formal systems; strings, regular expressions, formal languages, grammars, and the Chomsky hierarchy; finite automata, pushdown automata, theory of automata; decidability; Turing machines and other formal computer models; elements of complexity theory. 3 credit hours.

CS 320 Operating Systems

Prerequisite: CS 226 and CS 234. A study of operating systems, historical and modern. Process management, concurrency, deadlock, memory management, file systems, interrupts, resource allocation, protection. 3 credit hours.

CS 325 APL

Prerequisite: CS 102. The language APL and its applications. Emphasis is given to aspects of the language which make it especially appropriate for processing matrices and handling numeric data. Intended for science and engineering students who want to learn a second computer language that is likely to be useful in their work. Not to be taken for credit by CS majors. 3 credit hours.

CS 332 PL/1
Prerequisite: CS 225. An advanced course in programming using PL/1. Topics: sorting, searching, string manipulation, finite state machines, linking, recursion. Not for credit by majors. 3 credit hours.

CS 337 Introduction to Data-Base Systems
Prerequisite: CS 237. Issues in the design, implementation, selection, and use of computer files for external storage of data. Concurrency control, error recovery, and query processing. Programming projects required. 3 credit hours.

CS 338 Structure of Programming Languages
Prerequisite: Competence in three programming languages. The structure, syntax and semantic aspects of several languages are studied. Short programs will be written in 3 new languages. 3 credit hours.

CS 339 Theory and Construction of Compilers
Prerequisites: CS 237, CS 234 and CS 338. Assemblers, Interpreters and Compilers. Finite state machines and their application to lexical analysis. Parsing, syntactic analysis and P-code. Semantic analysis, code generation and optimization. Programming in Pascal may be required. 3 credit hours.

CS 420 Software Design and Development
Prerequisite: Senior C.S. Standing. This course will bring together ideas and skills learned in the preceding courses. It includes methods for design, optimization and debugging, interfacing with users and with the computing environment, and documentation. These issues are dealt with on a mature level in order to prepare students for future jobs. A large project will be designed and implemented by the class. 3 credit hours.

CS 425 Principles of Computer Graphics
Prerequisite: M 118 and either CS 224 or CS 226. Development and implementation of the fundamental algorithms of computer graphics. Topics covered will include 2-D viewing, geometric transformations, clipping, segmentation, curves, user interaction, and an introduction to 3-D viewing and surfaces. 3 credit hours.

CS 437 Data Base Design
Prerequisite: CS 337. The development capabilities and use of data-base systems; their benefits and costs. Overview of DB systems, major DB models, OBMS-based database design. 3 credit hours.

CS 440 Programming Laboratory
A laboratory course in which the students will write a series of programs under the guidance of a faculty member. The programs will be written in a currently standard systems programming language, such as "C," "FORTH" or "LISP." Programming assignments will be an extension of the course material of one of the junior/senior courses, and will provide an opportunity for students to apply the theory learned in these courses. This course can be taken repeatedly, working in different languages or doing more advanced projects. 1 credit hour.

CS 447 Computer Communications
Prerequisites: CS 106 and IE 346. Problems and solutions in designing a network of computers. Topics: ISO 7-level model, network topology, communications theory, protocols, virtual circuits and packet switching, local networks (CSMA, token ring), security (DES, Public Key Crypto-systems), concurrency, distributed software. 3 credit hours.

CS 450-455 Special Topics
Prerequisite: Junior standing. An examination of new developments or current practices in computer science. One topic will be selected for thorough study. 3 credit hours.

CS 478 Artificial Intelligence/ LISP
Prerequisite: CS 224 or CS 226. For computing majors. Objectives: to teach the concepts syntax and procedures of the LISP language and to acquaint the student with the present capabilities of artificial intelligence. The course will investigate, through programming projects, those methods of logic and mathematics pertinent to AI research. Topics: expert systems, minimax search, alpha-beta pruning, question answering systems, game trees, learning machines. 3 credit hours.

CS 480 Topics in Systems and Architecture
Prerequisite: CS 320. A second course in operating systems and system architecture, covering advanced topics and new hardware and software developments. Topics include: data compression, portable code, inter-process communication, network systems, hazards and protection, I/O devices and optimization, parallel architecture, and new developments. Each student will do library research on an assigned topic and make both written and oral presentations of his work. 3 credit hours.

CS 504 Senior Project
Prerequisite: senior status and permission of the department. The student, in conjunction with a faculty adviser, selects and works on a project. Work is presented at a seminar at the end of the semester. 3 credit hours.

COURSES

Criminal Justice

CJ 100-101 Introduction to Criminal Justice I & II
Survey of criminal justice system with emphasis upon prosecution, corrections and societal reaction to offenders. Retribution, rehabilitation, deterrence, and incapacitation serve as generic frames of reference and theoretical points of departure for analyzing the dispositional and correctional processes. Introduction to Criminal Justice I focuses on the first half of the process—from prosecution through the courts; Introduction to Criminal Justice II completes the cycle from the courts through the correctional system. 3 credit hours each.

CJ 102 Criminal Law
The scope, purpose and definitions of substantive criminal law: criminal liability, major elements of statutory and common law offenses (with some reference to the Connecticut Penal Code) and significant defenses. 3 credit hours.

CJ 105 Introduction to Security
A general survey of the major historical, legal and practical developments and problems of security. The course will stress the components, organization and objectives of security, the trend toward professionalization, the role of security in the public and private sectors and its relationship to management. 3 credit hours.

CJ 201 Principles of Criminal Investigation
An introduction to criminal investigation in the field. Conducting the crime scene search, interview of witness, interrogation of suspects, methods of surveillance and the special techniques employed in particular kinds of investigation. 3 credit hours.

CJ 203 Security Administration
This course will present an overview of security systems found in retail, industrial and governmental agencies, the legal framework for security operations, and the administrative and procedural processes in security management. 3 credit hours.

CJ 204 Forensic Photography with Laboratory
An introduction to basic techniques, material and other aspects of crime scene photographs. Theory and practice of photographic image formation and recordings. Laboratory exercises with emphasis on homicide, sex offenses, arson and accident photograph techniques. Laboratory Fee. 3 credit hours.

CJ 205 Interpersonal Relations
Prerequisite: P 111. Theories, conceptual models and research related to interpersonal relations. Topics include reciprocal theory, attitudes and labeling theory. 3 credit hours.

CJ 209 Correctional Treatment Programs
Prerequisites: CJ 100, CJ 101. Various treatment modalities employed in the rehabilitation of offenders. Field visits to various correctional treatment facilities such as half-way houses and community-based treatment programs. 3 credit hours.

CJ 215 Introduction to Forensic Science
Prerequisite: CJ 201. A classroom lecture/discussion session and a laboratory period. Topics include the recognition, identification, individualization and evaluation of physical evidence such as hairs, fibers, chemicals, narcotics, blood, semen, glass, soil, fingerprints, documents, firearms and tool marks. Laboratory Fee. 3 credit hours.

CJ 217 Criminal Procedure I
Prerequisites: CJ 100, CJ 101, CJ 102. An inquiry into the nature and scope of the U.S. Constitution as it relates to criminal procedures. Areas discussed include the law of search and seizure arrests, confessions and identification. 3 credit hours.

CJ 218 Criminal Procedure II and Evidence
Prerequisites: CJ 100, CJ 101, CJ 102, CJ 217. Legal doctrines, employed in controlling the successive stages of the criminal process. Rules of law related to wiretapping and lineups, pretrial decision making, juvenile justice and trial. 3 credit hours.

CJ 220 Legal Issues in Corrections
Prerequisites: CJ 100, CJ 101, CJ 217, junior status. An examination of the legal foundations of correctional practice and a review of recent judicial decisions which are altering the correctional environment. An analysis of the factors and forces which are creating a climate of significant reform in corrections. 3 credit hours.

CJ 221 Juvenile Justice System
Prerequisites: CJ 100, CJ 101, P 111, SO 113. An analysis of stages and decisions made at critical junctures of the juvenile justice process. Topics include an analysis of Supreme Court treatment of juvenile justice issues, and the ability of the juvenile justice system to respond to juvenile crime. The focus of the course is on the processing of juveniles through the system, and the special problems unique to juvenile justice. 3 credit hours.

CJ 226 Industrial Security
Prerequisite: CJ 105. Concepts of security as it integrates with industrial management systems will be presented along with industrial security requirements and standards, alarms and surveillance devices, animate security approaches, costing, planning and engineering. Principles of safety practices and regulations will be covered, as well as fire prevention, property conservation, occupational hazards and personal safeguards. 3 credit hours.

CJ 227 Fingerprints with Laboratory
Prerequisites: CJ 201, CJ 215. This course will study the genetics and mathematical theory relating to fingerprints, chemical and physical methods used in developing latent fingerprints, and major systems of fingerprint classification. Laboratory Fee. 3 credit hours.

CJ 300 History of Criminal Justice
Prerequisites: CJ 100, CJ 101. This course is intended to trace the development of the major C.J. elements including police, prisons, probation and parole. Significant historical events and philosophical postulates as they pertain to this development are explored. 3 credit hours.

CJ 301 Group Dynamics in Criminal Justice
Prerequisites: CJ 205, CJ 206, P 111. An analysis of theory and applied methods in the area of group process. Focus on both individual roles and group development as they relate to criminal justice issues. Experiential exercises are included. 3 credit hours.

CJ 303-304 Forensic Science Laboratory I and II
Prerequisite: CJ 215. Specific examination of topics and laboratory testing procedures introduced in CJ 215. In the classroom, laboratory procedures are outlined and discussed. Identification and individualization of evidence; casting of hairs and fibers for microscopic identification; electrophoretic separation of blood enzymes. Laboratory Fee. 3 credit hours each.

CJ 306 Security Problems Seminar
Prerequisite: CJ 105, CJ 203. An analysis of special problem areas including college and university campuses, hospitals, hotel/motels etc. Also, special problems concerning computer protection, bank security, executive personnel protection, credit cards, case law and legal aspects, control of proprietary information and white collar crime. 3 credit hours.

CJ 310 Criminal Justice Institutions
Prerequisite: CJ 300. This course will examine the societal and psychological implications of various types of institutions. This will include both social and total institutions and will examine their similarities and dissimilarities with particular emphasis on their implications for Criminal Justice. 3 credit hours.

CJ 311 Criminology
Prerequisites: CJ 100, CJ 101, P 111, SO 113. An examination of principles and concepts of criminal behavior; criminological theory; the nature, extent and distribution of crime; legal and societal reaction to crime. Same course as SO 311. 3 credit hours.

CJ 333 Police Civil Liability
Prerequisites: CJ 100, CJ 101, CJ 102, CJ 217 or permission of instructor. An introductory overview of types of civil liability lawsuits brought against law enforcement officers. Exploration of ways to relieve the pressures of this potential liability. Emphasis placed on negligence and intentional torts. 3 credit hours.

CJ 400 Criminal Justice Problems Seminar
Prerequisites: CJ 100, CJ 101, CJ 300. An examination of theoretical and philosophical issues affecting the administration of justice: the problems of reconciling legal and theoretical ideals in various sectors of the criminal justice system with the realities of practice. 3 credit hours.

CJ 402 Police in Society
Prerequisites: CJ 100, CJ 101, CJ 300. This course will acquaint the student with the major developments and trends of policing in a free society. Emphasis will be placed on American police and the role of the police in a democracy. Further emphasis will be placed on the examination of the interactions between the police and the communities they serve. 3 credit hours.

CJ 403 Advanced Forensic Science I
An in-depth examination of blood grouping procedures for red cell antigens, isoenzymes and serum proteins, identification and typing of body fluids and their stains; collection, processing and handling of biological materials in casework. Laboratory Fee. 4 credit hours.

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CJ 404 Advanced Forensic Science II
An in-depth examination of several subjects in modern criminalistics, including hair and fiber analysis and comparison, arson accelerants and explosives residues, glass comparisons and forensic chemistry. Laboratory Fee. 4 credit hours.

CJ 405-407 Seminar in Criminal Justice
Prerequisite: senior status. An intensive analysis of variable topics of critical relevance in the administration of justice: a seminar exposing the student to a concentrated learning experience conducive to acquiring special expertise in a special academic area. 3 credit hours each.

CJ 408 Correctional Counseling I
Prerequisites: P 111, P 336, CJ 205, CJ 209, CJ 301. This course is designed to provide students with the knowledge of basic counseling and evaluation theory, methods, and research as applied to a correctional setting. 3 credit hours.

CJ 409 Correctional Counseling II
Prerequisite: CJ 408. Applications of correctional counseling theory and methods. Includes interviewing techniques and case intervention strategies with offenders. Focuses predominantly on one-to-one counseling situations. 3 credit hours.

CJ 410 Legal Issues in Private Security
Examines legal problems affecting the private security industry and ways to prevent loss from litigation. Includes intentional torts, negligence, agency, contracts and law of arrest, search and seizure, and interrogation by citizens. 3 credit hours.

CJ 415 Crime Scene Investigation and Pattern Evidence
Prerequisites: CJ 201, CJ 215. A study of the methods and techniques of crime scene investigation and documentation and physical evidence recognition and collection.

CJ 416 Seminar in Forensic Science
Prerequisites: CJ 201, CJ 215. An examination and evaluation of current issues in the law enforcement science field. The course is also designed to aid in understanding how various physical evidence can be utilized as an investigative tool. And, a review of modern analytical techniques and their application in law enforcement science. 3 credit hours.

CJ 498 Research Project
Prerequisite: consent of the department chairman. The student carries out an original research project in a criminal justice setting and reports the finds. 3 credit hours.

CJ 501 Criminal Justice Internship
Prerequisite: consent of the department chairman. This program provides monitored field experience with selected federal, state or local criminal justice agencies or forensic science laboratories subject to academic guidance and review. 3 credit hours.

CJ 599 Independent Study
Prerequisite: consent of the departmental chairman. An opportunity for the student, under the direction of a faculty member, to explore and acquire competence in a special area of interest. 1-3 credit hours.

Dietetics and Institutional Management

DI 200 Volume Food Production and Service I
Introduction to the fundamental concepts, skills and techniques of basic food preparation and baking. Special emphasis is given to the study of ingredients, cooking theories, terminology, equipment, technology, weights and measures, formula conversion and procedures. Instruction will include: experimental hands-on preparation, demonstration and lecture. 3 credit hours. Laboratory fee.

DI 214 Food Service Management Systems I
Principles of meal planning and writing menus for volume food combinations, texture, color, nutrition and cooking methods. The interrelated steps involved in quantity food production, the delivery of food and the responsibilities of management along with the tools they have to use as administrators will be explored. 3 credit hours.

DI 215 Food Service Management Field Experience I
Prerequisite: Consent of instructor. The student will complete 250 hours of preplanned work experience at a health related facility under the direction of a registered dietician. Each student will keep a log of the hours and activities completed at the facility and will report to the instructor every two weeks. A project agreed upon by the student, the instructor and the facility dietician will be completed by the student and prepared as a term paper. This course is required for dietetic technology majors. 3 credit hours.

DI 216 Food Service Management Systems II

Prerequisite: DI 214. Basic principles of food sanitation and work safety are stressed. The student will write policies and procedures and conduct an in-service training class for a food service facility in the hospitality field. Emphasis is placed on the causes and prevention of food poisoning and the moral and legal responsibilities of management to present safe and sanitary food to patrons. 3 credit hours.

DI 218 Food Service Management Systems III

Prerequisite: DI 214. Investigation of management problems associated with employee relations in the hospitality field will be explored. Specific attention will be given to union activity in the hospitality industry. Case studies will be analyzed with regard to collective bargaining, grievance procedures, mediation and conciliation. 3 credit hours.

DI 222 Dietetic Seminar

Special topics relating to food service management in institutions and community nutrition care programs. After selecting a topic on contemporary problems, the student will review the literature, prepare a bibliography, and make an oral presentation before the seminar class. 1 credit hour.

DI 300 Special Topics

The dietetics and institutional management fields are constantly changing due to new technology and avenues for their expansion and management. The purpose of these courses is to select special topics that are not covered in existing courses and expose students to recent developments and future research in the following specific courses. 3 credit hours. Selected courses will be offered in the fall, spring and summer semesters.

DI 300 Fundamentals of Food

Introduction to the fundamental concepts, skills and techniques of basic food preparation and baking. Special emphasis is given to the study of ingredients, cooking theories, terminology, equipment, technology, weights and measures, formula conversion and procedures. Instruction will include: experimental hands-on preparation, demonstration and lecture. 3 credit hours. Laboratory fee.

DI 300 Nutritional Analysis

Nutritional analysis of food as it relates to the Recommended Daily Dietary Allowances will be done for regular and therapeutic diets. Laboratory values and anthropometric measurements will be explored with their practical applications toward the nutritional assessment of the individual. 3 credit hours.

DI 300 Diets Throughout the Life Cycles

Prerequisite: BI 115. A study of the life cycles from infancy to gerontology, and the dietary implications to these changes in the body will be explored. Emphasis will be placed on current research in the field of nutrition. 3 credit hours.

DI 300 Modification of Diets

Prerequisites: BI 115, BI 116. Normal diets will be written and then modified to accommodate needs of specific disease states as related to therapeutic diets. Therapeutic diets requiring multiple restrictions will be analyzed. 3 credit hours.

DI 300 Computer and Dietetics

In this program several nutritional analyses computer programs are used to calculate nutritive values of single foods, recipes, meals and menus. Analyses include percent of Recommended Dietary Allowances according to individual age, sex, weight and height for nutrients, trace elements and amino acids. The programs allow creation of nutritionally balanced diets, identifies nutritive deficiencies and permits creation of any type of diet for any number of people. 3 credit hours.

DI 300 Computer and Food Service

This course enables one to use the computer to perform tasks related to menu writing, adjustment of recipes, and inventory control. Regular menus and therapeutic menus are provided and these menus may be modified to fit specific needs. Using the computer for the arithmetic task of volume adjustment saves time and permits the planning of recipes and menus for large numbers of people, and provides timely and accurate management reports. 3 credit hours.

DI 300 Computer and Cost Control

This computer program allows one to add inventory costs to menus and recipes. It enables one to change or delete menus from the cycle plan with the immediate understanding of the cost impact. Cost per serving figures for budgetary purposes are available. The program provides stock status reports, monthly usage summaries and purchase summaries per vendors. 3 credit hours.

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DI 317 Food Service Management Field Experience II

Prerequisite: Consent of instructor. The student will complete 150 hours of preplanned work experience at a health related facility under the direction of a registered dietician. Each student will keep a log of the hours and activities completed at the facility and will report to the instructor every two weeks. A project agreed upon by the student, the instructor and the facility dietician will be completed by the student and prepared as a term paper. This course is required for dietetic technology majors. 3 credit hours.

DI 419 Food Service Management Field Experience III

Prerequisite: Consent of instructor. The student will complete 250 hours of preplanned work experience at a health related facility under the direction of a registered dietician. Each student will keep a log of the hours and activities completed at the facility and will report to the instructor every two weeks. A project agreed upon by the student, the instructor and the facility dietician will be completed by the student and prepared as a term paper. This course is required for dietetic technology majors. Continuation of DI 317. 3 credit hours.

DI 521 Food Service Management Field Experience IV

Prerequisite: Consent of instructor. The student will complete 150 hours of field work in hotels, restaurants, institutions, clubs, dietetics or tourism agencies. The field experience will emphasize selected aspects of personnel management, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours.

DI 599 Independent Study

Permission of the department chairman required. Independent research projects or other approved phases of independent study. 3 credit hours.

Economics

EC 100 Economic History of the U.S.

Development of American economic interactions in the various stages of agriculture, trade, industry, finance and labor. Change of economic practices and institutions, particularly in business, banking and labor as well as the changing role of government. 3 credit hours.

EC 133 Principles of Economics I

Foundations of economic analysis, including economic progress, resources, technology, private enterprise, profits and the price system. Macroeconomics including national income, employment and economic growth. Price levels, money and banking, the Federal Reserve System, theory of income, employment and prices, business cycles and problems of monetary, fiscal and stabilization policy. 3 credit hours.

EC 134 Principles of Economics II

Microeconomics including markets and market structure and the allocation of resources. The distribution of income, the public economy, the international economy and selected economic problems. 3 credit hours.

EC 250 Economics and U.S. Industrial Competitiveness

An examination of the free market and the most effective path to revitalizing the competitiveness of U.S. industry in world markets. Addressed are such key issues as government assistance to industries, regions and workers; regulation and antitrust; dealing with international competition; and promoting trade in services. 3 credit hours.

EC 311 Government Regulation of Business

Prerequisites: EC 133, EC 134. An appraisal of public policy toward transportation, trusts, monopolies, public utilities and other forms of government regulation of economic activity. 3 credit hours.

EC 312 Contemporary Economic Problems

The course concerns selected current economic problems; inflation, unemployment, poverty in an affluent society, economic issues in health services, the economics of higher education, and the problems of the cities and population. The purpose is to examine and to explore policies to cure these problems. 3 credit hours.

EC 314 Public Finance and Budgeting

Prerequisites: EC 133, EC 134. A general survey of government finance at the federal, state, and local levels, including government expenditures, principles of taxation, public borrowing, debt management, and fiscal policy for economic stabilization. 3 credit hours.

EC 336 Money and Banking
Prerequisites: EC 133, EC 134. Nature and function of money, commercial banking system, Federal Reserve System and the Treasury, monetary theory, financial institutions, international financial relationships, history of money and monetary policy in the United States and current problems of monetary policy. 3 credit hours.

EC 340 Microeconomic Analysis
Prerequisites: EC 133, EC 134. Study of commodity and factor pricing, theory of production, cost theory, market structures under perfect and imperfect market conditions. 3 credit hours.

EC 341 Macroeconomic Analysis
Prerequisites: EC 133, EC 134, A 111. An investigation of the makeup of the national income and an analysis of the factors that enter into its determination. The roles of consumption, investment, government finance and money influencing national income and output, employment, the price level and rate of growth; policies for economic stability and growth. 3 credit hours.

EC 342 International Economics
Prerequisites: EC 133, EC 134. The role, importance and currents of international commerce; the balance of international payments; foreign exchange and international finance; international trade theory; problems of payments adjustment; trade restrictions; economic development and foreign aid. 3 credit hours.

EC 345 Comparative Economic Systems
Prerequisites: EC 133, EC 134. The course examines contemporary economic systems, ranging from those that rely heavily upon market mechanism to those that rely on central planning in decision making. A selected country for each system is taken into consideration. 3 credit hours.

EC 350 Economics of Labor Relations
Prerequisites: EC 133, EC 134. History of the union movement in the United States, union structure and government, problems of collective bargaining, economics of the labor market, wage theories, unemployment, governmental policy and control and problems of employment security. 3 credit hours.

EC 420 Applied Economic Analysis
Prerequisites: EC 133, EC 134. A study of applied economics involves application of the tools of economic analysis to the real-life problems of business firms, government agencies and other organizations. 3 credit hours.

EC 440 Economic Development
Prerequisites: EC 133, EC 134. Economic problems of developing countries and the policies necessary to induce growth. Individual projects required. 3 credit hours.

EC 442 Economic Thought
Prerequisites: EC 133, EC 134. The development of economic doctrine from mercantilism and Adam Smith to Marx and to the thinking of modern-day theorists, such as Friedman, Galbraith, Schumpeter, and Debreu. Emphasis upon the main currents of thought with the applicability to present day problems. Individual study and reporting. 3 credit hours.

EC 599 Independent Study
Prerequisite: consent of the department chairman. Independent research projects or other approved forms of independent study. 3 credit hours.

Electrical Engineering

EE 201 Basic Circuits I
Prerequisites: M 117, CS 102, concurrent registration in M 118, PH 205. Energy effects and ideal circuit elements, resistance, capacitance, inductance; active devices, Kirchhoff's Laws, energy conservation; resistive networks, Thevenin/Norton theorems, voltage and current dividers; natural response of first and second-order networks, natural frequencies/poles. 3 credit hours.

EE 202 Basic Circuits II
Prerequisites: CS 102, EE 201, M 118. Continuation of EE 201. Forced response, transfer functions, initial conditions, impulse response, complete solutions. Sinusoidal steady state techniques, complex transfer functions. Power, energy, power factor, vars. 3 credit hours.

EE 211-212 Principles of Electrical Engineering I and II
Prerequisites: PH 150, PH 205, M 118 (may be taken concurrently). Circuit variables, resistance, capacitance, inductance, power and energy. Kirchhoff's laws, analysis of circuits, equivalent circuits. Instruments and measurement techniques. Diodes and transistors, amplifiers and wave shaping circuits. Electric and magnetic field effects, forces, torques, motor and generator characteristics, transformers. Digital logic and elements of logic and switching circuit design. EE 212 will include selected laboratory experiments. These courses are intended for non-electrical engineering majors. 6 credit hours.

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EE 253 Electrical Engineering Laboratory I
Prequisite: EE 202 (may be taken concurrently). Laboratory exercises and projects including resistance, capacitance and inductance measurement, diode, transistor and operational amplifier characteristics. Measurement of electrical parameters. Characteristics and applications of basic electrical laboratory apparatus. Laboratory Fee. 3 credit hours.

EE 255 Digital Systems I
Fundamental concepts of digital systems. Binary numbers, Boolean algebra, combinational logic design using gates, map minimization techniques. Use of modular MSI components such as adders, multiplexers, etc.; Analysis and design of simple synchronous sequential circuits, including Flip-Flops, shift registers and counters. 3 credit hours.

EE 301 Network Analysis
Prerequisite: EE 202. Properties of transfer functions; frequency response curves, bandwidth and quality factor. Mutual inductance and two port parameters. Power, energy and harmonic phenomena in polyphase systems. Computer Use Fee. 3 credit hours.

EE 302 Systems Analysis
Prerequisite: EE 301. Continuous and discrete signals, difference equations. The convolution sum and integral. The Z transform. Fourier series and Fourier transform, ideal filter properties. Frequency analysis of signals. 3 credit hours.

EE 341 Digital Computer Techniques
Prerequisites: M 118, EE 202. Numerical analysis techniques with engineering problems. Design and execution of digital computer algorithms. Digital simulation of dynamic systems. 3 credit hours.

EE 344 Electrical Machines
Prerequisite: EE 301. Fields, forces, torques in magnetic systems. Theory characteristics and applications of direct current and alternating current machines, including transformers and synchronous and induction machinery. 3 credit hours.

EE 347 Electronics I
Prerequisite: EE 202. Fundamental principles and applications of electronic devices and circuits using diodes, bi-polar transistors and FET's. Analysis and design limited to single stage circuits. Applications to analog systems with an introductory discussion of digital circuits. 3 credit hours.

EE 348 Electronics II
Prerequisite: EE 347. Principles and applications of analog circuits at a more advanced level using bi-polar and FET devices. Small signal analysis using hybrid models including both single stage and multistage amplifiers at high and low frequencies and difference amplifiers. 3 credit hours.

EE 349 Electrical Engineering Laboratory II
Prerequisites: EE 347 and EE 348 (concurrently). Laboratory exercises and design projects intended to give the student practical experience in BJT and FET single and multiple stage amplifier design. Experiments also include diode circuits, power amplifiers and differential amplifiers. Laboratory Fee. 3 credit hours.

EE 356 Digital Systems II
Prerequisites: EE 255 and, EE 371 or CS 234. Design of larger digital systems. Use of MSI and LSI components. Computer aided digital design. Other topics of current interest. 3 credit hours.

EE 371 Computer Engineering I
Prerequisites: CS 102, EE 255. Introduction to the architecture of digital computers. Stored program concept, instruction processing, memory organization, instruction formats, addressing modes, instruction sets, assembler and machine language programming. Input/Output programming, Direct memory access. Bus structures and control signals. 3 credit hours.

EE 420 Random Signal Analysis
Prerequisites: EE 301, EE 302. The elements of probability theory. Continuous and discrete random variables. Characteristic functions and central limit theorem. Stationary random processes and auto correlation. Power density spectrum of a random process. Systems analysis with random signals. 3 credit hours.

EE 437 Industrial Power Systems Engineering
Prerequisite: EE 301. Study of the components forming a power system, its economic operation; symmetrical components and sequence impedance in the study of faults and load-flow studies. 3 credit hours.

EE 438 Electric Power Transmission
Prerequisite: EE 437. The fundamentals of electric generation, transmission and distribution. Transmission line analysis and performance, circle diagrams. Load-flow studies. Power system stability. 3 credit hours.

EE 445 Communications Systems
Prerequisites: EE 301, EE 302. The analysis and design of communication systems. Signal analysis, transmission of signals, power density spectra, amplitude, frequency and pulse modulation. Performance of communications systems and signal to noise ratio. 3 credit hours.

EE 446 Digital Electronic Circuits
Prerequisite: EE 347. Design principles and applications of digital circuits at an advanced level using the Ebers-Moll transistor model. Analysis of single cell digital circuits, using various logic technologies, determination of current and voltage levels throughout the cell to include I-0 characteristics of the cell. The transistor is examined in the normal, inverse and so-called second quadrant modes of biasing. 3 credit hours.

EE 450 Analog Filter Design
Prerequisites: EE 301. Techniques in the analysis and design of active networks. First order active networks. Second order active networks. Design of Butterworth, Chebyshev, Bessel-Thomson and Cauer lowpass filters. Lowpass to bandpass, bandstop and highpass filter transformations. 3 credits.

EE 452 Design of Digital Filters
Prerequisite: EE 302. Techniques in the analysis and design of digital filters. Digital filter terminology and frequency response. FIR filter design. IIR digital filter design including Butterworth and Chebyshev lowpass, highpass, bandpass, and bandstop filters. The DFT and IDFT. FFT algorithms. 3 credit hours.

EE 455 Control Systems
Prerequisites: M 203, M 204, EE 302. The modeling of linear and nonlinear physical systems with discrete and continuous state space equations. Solutions to the discrete and continuous linear state equation; state transition matrices; phase variable forms; Eigenvalues and Eigenvectors; Jordan Canonical form. Controllability and observability of discrete and continuous systems. Relationships between controllability, observability and transfer functions. The stability of discrete and continuous linear systems, Liapunov, root locus, Nyquist, feedback; PID control; Lead-lag control.

EE 457 Electrical Engineering Laboratory III
Prerequisite: senior standing. Selected series of laboratory exercises and design projects covering aspects of electrical power systems, communications systems, control systems, microwaves, digital electronics and digital circuits. 3 credit hours.

EE 458 Electrical Engineering Design Laboratory
Prerequisite: senior standing. A course required of all BSEE candidates usually in the final semester of study. The student selects a sub-area of electrical engineering and devotes the entire semester to laboratory-design activities under the supervision of a faculty member. This course is intended to provide the student with experience at a professional level with engineering projects that involve analysis, design, construction of prototypes and evaluation of results. 3 credit hours.

EE 461 Electromagnetic Theory
Prerequisites: M 203, PH 205. Basic electromagnetic theory including static fields of electric charges and the magnetic fields of steady electric currents. Fundamental field laws. Maxwell's equations, scalar and vector potentials. Laplace's equation and boundary conditions. Magnetization, polarization, field plotting. 3 credit hours.

EE 462 Electromagnetic Waves
Prerequisite: EE 461. Electromagnetic wave propagation and reflection in various structures, including coaxial, two wire and waveguide systems. Various modes of propagation in rectangular waveguides. The dipole antenna. Transmission lines and Smith chart techniques. 3 credit hours.

EE 463 Electromechanical Energy Conversion
Prerequisites: EE 461, M 204. Introduction to electromechanical devices, lumped parameter electromechanics; introduction to rotating machinery, equilibrium and stability, fields in moving matter; energy conversion dynamics. 3 credit hours.

EE 465 Physical Electronics
Prerequisite: EE 347. Principles and operation of semiconductor devices from the viewpoint of physical and internal characteristics. The course includes semiconductor LED's and lasers, microwave devices and 4 element semiconductor devices in general. The discussions extend to the design of VLSI chips from the LSI level. 3 credit hours.

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EE 475 Microprocessor Systems
Prerequisite: EE 371. Microprocessors and their peripheral devices. Hardware and software aspects of interfacing. Complete system design using microprocessors. Introduction to advanced topics such as data communications, memory management and multiprocessing, as time permits. The course is structured around laboratory excercises. Computer Use Fee. 3 credit hours.

EE 480 Fiber Optic Communications
Prerequisite: EE 461. The fundamentals of lightwave technology, optical fibers, LED's and Lasers, signal degradation in optical fibers. Photodetectors, power launching and coupling, connectors and splicing techniques. Transmission link analysis. This course will include selected laboratory experiments. 3 credit hours.

EE 500 Special Topics in Electrical Engineering
Prerequisite: instructor's consent. Open to seniors in electrical engineering. Special topics in the field of electrical engineering. Supervised independent study. Arranged to suit the interest and requirements of the student. Computer Use Fee (dependent upon topic). 3 credit hours.

EE 599 Independent Study
Prerequisite: Consent of faculty supervisor and approval of department chairman. Independent study provides the opportunity to explore an area of special interest under faculty supervision. May be repeated. 3 credit hours.

Engineering Science

ES 103 Technology in Modern Society
Scientific and technological developments and their implications for the future of society. Prospects and problems in communications, energy sources, automation, transportation and other technologies. Use and control of technological resources for public benefit. 3 credit hours.

ES 107 Introduction to Engineering
Prerequisite: M 115 (may be taken concurrently). Overview of the problems, perspectives and methods of the engineering profession. Modeling of real world problems for purposes of optimization, decision making and design. Practical techniques of problem formulation and analysis. 3 credit hours.

ES 415 Professional Engineering Seminar
Prerequisite: senior status. Discussion of topics on professional engineering and ethical matters pertaining to the practice of engineering. This course intended for non-civil engineering majors. Civil engineering majors will take CE 407. 1 credit hour.

English

Note: E 105 and E 110 are required by all departments in the university and must be taken during the student's first year at the university. They are also prerequisites for all upper-level English courses. Students who fail the Proficiency Examination may be helped by enrolling in E 250 and/or utilizing the Center for Learning Resources.

E 101 Reading Strategies
Reading, analyzing, and interpreting non-fiction for the purpose of learning to comprehend textbooks. 1 credit hour. Laboratory Fee.

E 103 Fundamentals
Designed to increase awareness of the structure of English. Intensive practice in writing to improve the student's ability to construct effective sentences, paragraphs, and short themes. 3 excess credit hours, 6 class hours per week. See section, Developmental Studies program.

E 104 Fundamentals
For international students. Same course description as for E 103.

E 105 Composition
Prerequisite: satisfactory grade on English placement test or E 103. Analytical study of essays for the purpose of improving skills of written communication. Practice in writing in a variety of rhetorical modes with emphasis upon clarity and precision. 3 credit hours.

E 106 Composition
For international students. Same course description as for E 105.

E 110 Composition and Literature
Prerequisite: E 105 or placement by the English department. Reading, analyzing, and interpreting literature in three basic genres: fiction, poetry, and drama. Writing of analytical and critical essays. Theater fee for day sections. 3 credit hours.

E 111 Composition and Literature
For international students. Same course description as for E 110.

E 114 Oral Exposition
A disciplined approach to oral communication for freshmen. Objectives are to develop proficiency in locating, organizing and presenting material and to help the student gain confidence and fluency in speaking extemporaneously. Students beyond the freshman year should take E 230. 3 credit hours.

E 200 Speedreading
A course to increase reading speed and improve memory and cognitive skills. Laboratory Fee. 1 credit hour.

E 201 Literary Heritage
Selected translations of European prose, poetry and drama from Homer through the Middle Ages. 3 credit hours.

E 202 Modern Literature
Selected translations of prose, poetry, and drama from the Renaissance to the twentieth century. 3 credit hours.

E 211 Early British Writers
A study of important British writers from the beginning of literature in English through the Neoclassic era. 3 credit hours.

E 212 Modern British Writers
A study of important British writers from the Romantic era to the present. 3 credit hours.

E 213 Early American Writers
A study of important American writers from Colonial times to the 1850s. 3 credit hours.

E 214 Modern American Writers
A study of important American writers from the 1860s to the present. 3 credit hours.

E 220 Writing for Business and Industry
Prerequisite: E 105. Intensive practice in the various types of writing required of executives, businessmen, engineers and other professionals, with emphasis on business letters, resumes, internal and external reports, evaluations and recommendations, descriptions of procedures and processes. 3 credit hours.

E 225 Technical Writing and Presentation
Intensive practice in the common forms of technical writing, with emphasis on technical description and the writing of reports and manuals. Oral presentation of written work. 3 credit hours.

E 230 Public Speaking and Group Discussion
Objectives are to develop proficiency in organizing and presenting material, and to give practice in speaking, group interaction, conference management and small group discussion. 3 credit hours.

E 250 Expository Writing
Intensive practice in writing that explains. Emphasis on gathering information, establishing credibility, and attaining clarity, coherence, and point. 3 credit hours.

E 260 The Short Story
A critical study of the best stories of American and British writers as well as stories, in translation, of writers of other nationalities. 3 credit hours.

E 261 The Essay
Writing of several types of essays; study of contemporary essays and great essays of the past. Particular attention paid to organization, methods of development, and style. 3 credit hours.

E 267 Creative Writing I
Imaginative exploration of both prose and verse; practice in writing various short forms of each; particular attention to concrete imagery, clarity of thought and the development of style. 3 credit hours.

E 268 Creative Writing II
Emphasis on the elements of short fiction and drama; secondary attention to related forms. 3 credit hours.

E 275 Film Studies
A consideration of significant full-length feature films selected to represent a national school of filmmaking, a genre, the respective crafts of directors, performers or script writers. Films will be shown in class and studied at the rate of about one a week. 3 credit hours.

E 281 Science Fiction
A survey of the development of science fiction during the nineteenth and twentieth centuries. Reading of American, English and European science fiction novels and short stories. 3 credit hours.

E 290 The Bible as Literature
A study of literary genres in the Bible: narrative, drama, poetry, wisdom literature, books of prophecy, letters. Extensive readings in both the Old and New Testaments. Emphasis on the King James version, the "noblest monument of English prose." 3 credit hours.

E 323 The Renaissance in England
Major writers of the English Renaissance, including Sidney, Spenser, Donne and Milton. 3 credit hours.

E 341 Shakespeare I
An analysis of representative history plays, early comedies and tragedies. 3 credit hours.

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E 342 Shakespeare II
An analysis of representative later plays. 3 credit hours.

E 353 Literature of the Romantic Era
Poetry and prose of the major Romantics—Wordsworth, Coleridge, Byron, Shelley, Keats, Lamb, and Hazlitt—with attention given to the milieu of the writers, the Continental background and theories of Romanticism. 3 credit hours.

E 356 Victorian Literature
Poetry and prose from 1830-1900. The works of Tennyson, Browning, Arnold, Carlyle, Mill, Newman, Ruskin and others studied in the light of the social, political and religious problems of the period. 3 credit hours.

E 371 Literature of the Neoclassic Era
British writers of the period 1660-1789, with emphasis upon Dryden, Pope, Swift and Johnson. 3 credit hours.

E 390 The Novel in English
Great novels written in English (with the exception of American novels, which are studied in American literature courses). 3 credit hours.

E 392 Poe, Hawthorne and Melville
A study of the poetry and fiction of the major representatives of the tragic outlook on life in mid-nineteenth century American literature. Poe, Hawthorne and Melville. 3 credit hours.

E 395 American Realism and Naturalism
Readings in the works of such major realists as Howells, Twain and James and important naturalist successors such as Frank Norris, Stephen Crane and Theodore Dreiser. 3 credit hours.

E 402 Modern Poetry
A study of the works of representative twentieth-century British, American and Continental poets. 3 credit hours.

E 405 Modern Drama
Principal movements in Continental, British and American drama from Ibsen to the present. 3 credit hours.

E 406-409 International Literature
Selected poetry, drama and fiction, in translation, from one of the following nations: Russia, France, Germany, Spain, Japan or India. Topic to be announced for each semester. 3 credit hours each course.

E 477 American Literature Between World Wars
A study of the achievements of the main figures of the heroic generation that flourished between the two world wars and brought about "America's Coming of Age." Poets Ezra Pound, T.S. Eliot, Robert Frost, Wallace Stevens and William Carlos Williams; novelists Hemingway, Faulkner, Fitzgerald. 3 credit hours.

E 478 Contemporary American Literature
Intensive study of recent American fiction, non-fiction, poetry and drama. 3 credit hours.

E 480 Internship
A work experience, arranged through the department, that will require the effective use of written or spoken English.

E 481-498 Studies in Literature
Special topics in literature, which may include a concentration upon a single figure, a group of writers or a literary theme. 3 credit hours each course.

E 599 Independent Study
Prerequisites: consent of the instructor and the chairman of the department; restricted to juniors and seniors who have at least a 3.0 quality point ratio. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester.

Finance*

FI 113 Business Finance
Prerequisites: A 102 or A11, EC 134, QA 128. An introduction to the principles of financial management and the impact of the financial markets and institutions on that managerial function. An analytical emphasis will be placed upon the tools and techniques of the investment, financing and dividend decision. In addition, the institutional aspects of financial markets, including a description of financial instruments, will be developed. 3 credit hours.

FI 214 Principles of Real Estate
Prerequisite: FI 113. An introduction to the fundamentals of real estate practice and the essentials of the various aspects of the real estate business. Emphasis will be placed on brokerage, mortgage financing, investments, management and valuation relative to commercial and industrial real estate. 3 credit hours.

FI 227 Risk and Insurance
Prerequisite: FI 113. An examination and evaluation of risk in business affairs and the appropriate methods for handling them from the viewpoint of the business firm. Emphasis will be placed on, and extended consideration devoted to, the various forms of insurance coverage. 3 credit hours.

FI 229 Corporate Financial Management

Prerequisites: FI 113, QA 216. A comprehensive analysis of the structure of optimal decisions relative to the functional areas of corporate financial decision making. Emphasis is placed upon developing an understanding of the applications and limitations of decision models for the investment, financing and dividend decisions of the corporation. Topics include: firm valuation, capital budgeting, risk analysis, cost of capital, capital structure and working capital management. 3 credit hours.

FI 230 Investment Analysis and Management

Prerequisites: FI 113, QA 216. An analysis of the determinants of valuation for common stocks, preferred stocks, bonds, convertible bonds and preferred stock, stock warrant and puts and calls. Emphasis will be placed on the analytical techniques of security analysis, portfolio analysis and portfolio selection. 3 credit hours.

FI 325 International Finance

Prerequisite: FI 113. An introduction to the theory and determination of foreign exchange rates, mechanisms of adjustment to balance of payments disturbance, fixed vs. flexible exchange rates. The international reserve supply mechanism and proposals for reform of the international monetary system. 3 credit hours.

FI 341 Financial Decision Making

Prerequisites: FI 229, FI 230, QA 333. An examination of the conceptual foundations underlying portfolio theory, capital market theory and firm financial decision making. Emphasis will be placed on an integrated analysis of firm financial decision making under varying conditions of certainty and capital market perfections. 3 credit hours.

FI 345 Financial Institutions and Markets

Prerequisites: FI 113, QA 216. An examination of the relationship between the financial system and the level, growth and stability of economic activity. Emphasis will be placed upon the theory, structure and regulation of financial markets and institutions, coupled with the role of capital market yields as the mechanism that allocates savings to economic investment. 3 credit hours.

*Note: Due to expanding use of computing capabilities, a computer use fee may be charged in any finance course.

Fine & Applied Art

(See Art)

Fire Science

FS 105 Municipal Fire Administration

This course delineates the fire safety problem, explores accepted administrative methods for getting work done, covers financial considerations, personnel management, fire insurance rates, water supply, buildings and equipment, distribution of forces, communications, legal considerations, fire prevention, fire investigation, and records and reports. Course content is designed for individuals involved in either public or private fire protection systems as well as those in safety or insurance. 3 credit hours.

FS 106 Fire Strategy and Tactics

A study of the responsibilities and operating modes of officers commanding fire department units, including engine, ladder and rescue companies. Initial evaluation of the problems confronting first arriving units. Outline of particular problems encountered in various types of occupancies and buildings. Stress on safety of the operating forces as well as of the public. Standpipe and sprinkler system utilization. Overhauling operations. 3 credit hours.

FS 201 Essentials of Fire Chemistry with Laboratory

The examination of the chemical requirements for combustion, the chemistry of fuels and explosive mixtures and the study of the various methods of stopping combustion. Analysis of the properties of materials affecting fire behavior. Detailed examination of the basic properties of fire. Laboratory Fee. 4 credit hours.

FS 202 Principles of Fire Science Technology

This course is an introduction to the science of public fire protection with a review of the role, history and philosophy of the fire service in the United States. It includes career orientation and a discussion of current and future problems in public fire protection. 3 credit hours.

FS 207 Fundamentals of Fire Prevention

This course considers fire loss, investigation standards, laws, engineering, chemistry and physics as related to those persons entering into or already employed in the various branches of the fire service. It will also consider the fire and safety problems involved in storage and handling of specific hazardous materials. 3 credit hours.

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FS 208 Instructor Methodology
A study of the methods and techniques of teaching fire safety and security to public safety and industrial employees. The use and development of visual aids and actual teaching demonstrations will be included. 3 credits.

FS 301 Building Construction Codes and Standards
The various types of construction materials and their properties with emphasis on the effect of heat, water, and internal pressures generated under fire conditions. Familiarization with national, state, and local ordinances and codes which influence the fire protection field. 3 credit hours.

FS 303 Fire Protection Fluids and Systems
Chemical properties of fluids used in fire suppression systems and operations. Design of water supply and distribution for fire protection. Laboratory study of operational and hydraulics problems. 3 credit hours.

FS 304 Fire Detection and Control
Heat, sensitivity, thermostats, fusible elements, fire detection systems, designs and layouts, alarm systems, power sources, safeguards, municipal alarm systems, construction, installation and maintenance requirements, standards and codes. Automatic extinguishing systems, design and layout of water, gas and power systems. 3 credit hours.

FS 306 Fire and Casualty Insurance
This course will examine the institution of fire insurance in the United States since it is the primary means of minimizing the economic consequences of property fire damage. 3 credit hours.

FS 308 Industrial Fire Protection I
A study of fire hazards and potential fire causes in business and industry with critical analysis of private protection measures available to reduce loss potential. 3 credits.

FS 309 Industrial Fire Protection II
An exploration of management and organizational principles with emphasis on industrial fire inspections, fire brigades, equipment and OSHA regulations dealing with industrial fire brigades. 3 credits.

FS 325 Fire/Life Safety Codes
NFPA-101, Life Safety Code is studied in depth along with the various occupancies involved within structures. The intent and application of this and other applicable codes are emphasized. Building codes and other reference codes are discussed. 3 credit hours.

FS 350 Fire Hazards Analysis
This course covers the application of systems analysis, probability, engineering economy and risk management concepts to the fire problem. Various types of building construction and materials will be evaluated as well as the fire detection and suppression systems designed to protect the structures. System reliability will be considered along with the study of fire spread through a building. 3 credit hours.

FS 402 Arson Investigation
An analysis of incendiary fire investigations from the viewpoint of the field investigator with an emphasis on the value of various aids and techniques in the detection of arson, collection and preservation of evidence, investigation, interrogation, related laws of arson, court appearances, and testimony. There will be a discussion of case study illustrations. 3 credit hours.

FS 403 Process and Transportation Hazards
Special hazards of industrial processing, manufacturing and the transportation of products and personnel. Analytical approach to hazard evaluation and control. Reduction of fire hazards in manufacturing processes. 3 credit hours.

FS 404 Special Hazards Control
Types of industrial processes requiring special fire protection treatment such as heating equipment, flammable liquids, gases and dusts. Emphasis on fundamental theories involved, inspection methods, determination of relative hazard, application of codes and standards and economics of installed protection systems. 3 credit hours.

FS 405 Fireground Management
A study of the effective management of suppression forces at various fire situations. Includes consideration of pre-fire planning, problem identification and solution implementation. Case studies of actual and theoretical fire incidents, command control concepts, maximum utilization of forces available, priorities of action and logistics at large-scale operations will be covered. 3 credit hours.

FS 406 Arson Investigation II
Prerequisite: FS 402. An advanced course showing the principles and methods of investigation involving the techniques needed for the investigation of gas fires, automobile and boat fires, electrical fires, explosions and bomb scene investigation. 3 credit hours.

FS 407 Arson Investigation II Laboratory
This course consists of experiments dealing with FS 406. Laboratory Fee. 1 credit hour.

FS 408 Fire Protection Law
A study of law in relation to fire protection, liability of personnel, civil service, the search of the fire scene and criminal law related to arson and arson arrests. 3 credits.

FS 425 Fire Protection Plan Review
The technical and hands-on practical experience necessary to complete a review of plans and specifications for fire safety and protection of a building is covered in this course. The process includes site selection, water supplies for fire protection, fire pumps, automatic sprinkler and standpipe systems, fire alarm/detection systems as well as compliance with Fire/Life Safety Codes. 3 credit hours.

FS 498-499 Research Project
One lecture per week in FS 498; credit—1 credit hour. One lecture and one laboratory session per week in FS 499; credit—2 credit hours. Development of a student project and a written report in a specified area in fire administration or fire science technology with faculty supervision. Grade awarded upon completion of project. This is a two-semester course with FS 498 as prerequisite for FS 499. 3 credit hours over two-semester period.

FS 500 Selected Topics
Selected topics in fire science on a variety of current problems and specialized areas not available in the regular curriculum. 3 credit hours.

FS 501 Internship
Prerequisite: Consent of the director of the fire science program. This program provides monitored field experience with selected agencies subject to academic guidance and review. 3 credits.

FS 503 Patient Evacuation and Protection
In a fire emergency, patients depend on a well-trained emergency response team. Evacuation drills in hospitals, nursing homes and board care facilities are not always possible. A prepared staff is the best insurance against disaster, should a fire occur. This course will focus on the special circumstances of health care facilities that determine whether or not patient evacuation is appropriate. Case studies of successful evacuations will be reviewed and discussed. 3 credit hours.

FS 599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be intiated by the student. 1-3 credit hours per semester with a maximum of 12.

French

FR 101-102 Elementary French
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

FR 201-202 Intermediate French
Prerequisites: FR 101-102 or equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to do some reading in their own areas of interest. 6 credit hours.

FR 301-302 Main Currents of French Literature
Prerequisites: FR 201-202 or equivalent. Reading of significant writers of French literature from the Middle Ages to the twentieth century. 6 credit hours.

German

GR 101-102 Elementary German
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental princples of grammar. 6 credit hours.

GR 103 Conversational German
A bilingual course for basic understanding of German conversational patterns, the land and the people. 3 credit hours.

GR 201-202 Intermediate German
Prerequisites: GR 101-102 or the equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Texts used in the course are selected from many areas of study, including physics, biology and chemistry. Students are encouraged to read in their own areas of interest. 6 credit hours.

COURSES

History

HS 101 Foundations of the Western World
Traces the course of western civilization from its earliest beginnings in the ancient Middle East down to the eighteenth century. Includes major cultural trends, interactions between society and economy and analysis of the rise and fall of empires. 3 credit hours.

HS 102 The Western World in Modern Times
Europe and its global impact from the eighteenth century to the present. Includes revolutionary movements, the evolution of mass democracy and the world wars of the twentieth century. Not open to those who have had HS 106. 3 credit hours.

HS 105 Foundations of Economic History
A survey of the economic history of the western world from the earliest civilizations to the advent of industrialization in Europe. Includes discussion of the ancient economy, the commercial revolution and the impact of European colonization. 3 credit hours.

HS 106 Modern Economic History
Economic development of the industrialized world in the nineteenth and twentieth centuries. Includes United States, Europe, Japan. Special emphasis will be given to the social and cultural impact of economic change. Not open to those who have had HS 102. 3 credit hours.

HS 108 History of Science
The development of science and technology from antiquity to the present. Their impact on society and the world. 3 credit hours.

HS 110 American History Since 1607
A one-semester survey course, covering such major topics as colonial legacies, the American Revolution, nation-state building, sectional tensions, urbanization, industrialization, the rise to world power status, social and cultural developments and post-World War II. Not open to those who have had HS 211 or 212. 3 credit hours.

HS 120 History of Blacks in the United States
The history and background of Black people in the United States. Social, political and cultural development. 3 credit hours.

HS 204 History of Sport and Leisure
A survey of the history of sport and leisure in the United States with some comparative study of Europe and non-Western cultures. Topics include the rise of professional sports, and the commercialization of leisure. Offered spring semester of even-numbered years. 3 credit hours.

HS 207 World History since 1945
Survey of major events and trends since World War II. Advanced industrial societies are emphasized. Includes decolonization, East-West conflicts and patterns of economic cooperation and competition. Offered fall semester of even-numbered years. 3 credit hours.

HS 211 United States to 1865
Survey of American social economic, political and diplomatic developments from Colonial times to 1865. Not open to those who have had HS 110. 3 credit hours.

HS 212 United States since 1865
Survey of American history from 1865 to the present. Institutional and industrial expansion, periods of reform and adjustment. The U.S. as a world power. Not open to those who have had HS 110. 3 credit hours.

HS 223 United States Diplomatic History
The ideas, trends and interpretations of U.S. diplomacy from the American Revolution to the present. 3 credit hours.

HS 260 Modern Asia
The ideological, cultural and traditional political, economic and diplomatic history of East, South and Southeast Asia from the sixteenth century to the present. 3 credit hours.

HS 306 Modern Technology and Western Culture
The development of the modern technological world and its relationship to social, economic and cultural changes from the Industrial Revolution to the present. 3 credit hours.

HS 311 Colonial and Revolutionary America to 1789
The cultural and political background of British North America, Colonial and Revolutionary America. The creation of a republican society. 3 credit hours.

HS 312 United States in the Twentieth Century
The interaction of political, economic, social, intellectual and diplomatic events and their impact upon twentieth century America. 3 credit hours.

HS 322 United States Social and Intellectual History
The ideological, cultural and social development of the American people. The impact of ideas on American life. 3 credit hours.

HS 341 Ancient Greece and Rome
The rise and decline of ancient Greece and Rome. Institutions and ideas that have shaped Western civilization. 3 credit hours.

HS 343 Renaissance and Reformation Europe
Europe from 1300 to 1650; from feudal state to nation state; religious unity to diversity. 3 credit hours.

HS 344 Europe in the Seventeenth and Eighteenth Centuries
The cultural, political and economic life of Europe from classicism to the Napoleonic period; the Enlightenment. 3 credit hours.

HS 345 Europe in the Nineteenth Century
European history from the Napoleonic period to World War I; its internal development and world impact. 3 credit hours.

HS 349 Modern European Intellectual History
The intellectual, scientific and social thought from the Enlightenment to the present. The influence of ideologies on modern thinking. 3 credit hours.

HS 351 Russia and the Soviet Union
The development of czarist Russia from 1200 to the Revolution of 1917; the U.S.S.R. from 1917 to the present. Offered spring semester of even-numbered years. 3 credit hours.

HS 353 Modern Britain
The development of British history from the Restoration of 1660 to the present. Includes Britain's role in international affairs. Special emphasis on social and economic topics. Offered fall semester of odd-numbered years. 3 credit hours.

HS 355 Modern Germany
German civilization from the seventeenth century to the present; its impact on Europe and the world. 3 credit hours.

HS 381-389 Selected Studies in History
Special topics in history dealing with the modern world. A study in depth of vital historical issues. 3 credit hours.

HS 446 Europe in the Twentieth Century
Recent and contemporary European history beginning with World War I. Institutional development and its changing role in politics. 3 credit hours.

HS 461 Modern China
The ideological, cultural and historical background of China. The imperial order, Kuomintang and the Communist revolution to the present. 3 credit hours.

HS 466 Modern Japan
The institutional and cultural traditions of Japan. The feudal period and subsequent modernization, postwar political, economic and cultural transformations. 3 credit hours.

HS 490 Historiography
A survey of European and American historical thought, historical methods and contemporary historical writing. 3 credit hours.

HS 491 Senior Seminar
The undertaking of an independent study and research project. Required of all history majors in their senior year. 3 credit hours.

HS 599 Independent Study
Prerequisite: consent of faculty member and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 6.

Hotel and Restaurant Management

HR 100 Introduction to the Hospitality Industry
An introduction to the various operations within the hospitality industry, with special emphasis on current trends in hotel/restaurant management and operations. 3 credit hours.

HR 202 Volume Food Purchasing
Introduction to the purchasing, receiving and issuing of foods and food items. The identification of guides, preparation of specifications and cost control procedures are stressed. Field trips are required. 3 credit hours.

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HR 204 Volume Food Production and Service II
Prerequisites: DI 200, HR 202, HR 325. This course examines menu planning and quantity recipes standardization integrated with techniques, methods, principles and standards of volume food production and service. Supporting areas such as volume receiving, sotrage, sanitation, safety and equipment, and the phases of organization involved in the preparation and service of volume foods for large groups. Students assume responsibility for planning, purchasing, preparing and obtaining the food and labor cost for each preparation. Laboratory experiences are provided for quantity food production and service to the public. Laboratory Fee. 3 credit hours.

HR 210 Hotel Front Office Systems
Prerequisite: HR 100. An introduction to the work flow connected with front office procedures. Preparation of the night audit; an introduction to the art of innkeeping. 3 credit hours.

HR 212 Laws of Innkeeping
Prerequisite: HR 100 or consent of the instructor. The historical development of the common inn. Innkeeper/guest relationships, responsibilities of the innkeeper, and use of the innkeeper's lien. 3 credit hours.

HR 215 Supervised Field Experience I
Prerequisite: Consent of the instructor. 300 hours of field work in hotels, restaurants, institutions or clubs. The field experience will emphasize marketing techniques, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours.

HR 300 Special Topics
The hotel and food service fields are constantly changing due to new technology and avenues for their expansion and management. The purpose of these courses is to select special topics that are not covered in existing courses and expose the students to recent developments and future research in the following specific courses. All selected courses will be offered in the fall, spring, and summer semesters.

HR 300 Club Operations and Management
The management of the private club environment contrasted with the traditional profit-motivated segments of the hospitality industry will be emphasized. Organization and operation of clubs including special problems in social and recreational aspects, membership and taxes will also be included. 3 credit hours.

HR 300 Club Property Management
Basic principles of graphic communication as a management tool are covered as they relate to private club property management. Physical plant organization and spatial relationships common to private clubs are stressed. 3 credit hours.

HR 300 Club Banquet Management
In-depth analysis of the management problems involved in selling, organizing and servicing club banquets. 3 credit hours.

HR 300 Introduction to Club Management
A survey of the history, organizational structure and future direction of the private club industry. 3 credit hours.

HR 300 Private Club Administration
Design, analysis and evaluation of private club administration systems and operations. Emphasis is placed on analytical techniques, model building and computer-assisted club operations. 3 credit hours.

HR 300 Committee Policies and Procedures in Club Management
Current policy and procedure topics in club management will be stressed. Rules, regulations, legal aspects and board involvement outlining club policy and procedures will also be emphasized. 3 credit hours.

HR 300 Hotel Security
An examination of the current state of the art security systems used in the hospitality industry. Theft control, vandalism, guestroom security and management solutions will be discussed. 3 credit hours.

HR 300 Bar Management
Emphasis in this course is placed on the product and the manager's role and responsibilities in developing and operating a facility serving alcoholic beverages. Maximum sales potential through use of existing facilities is stressed. Laboratory Fee. 3 credit hours.

HR 300 Wine Appreciation
This course considers the major wines and wine regions of the world, with special emphasis on American, French, German, Italian and Spanish products. Evaluation by tasting is an integral part of the course. Laboratory Fee. 3 credit hours.

HR 300 Casino Management
Practices and problems associated with casino management are discussed; staffing, security and control, taxation and entertainment policies are included. 3 credit hours.

HR 300 Energy Management in the Hospitality Industry
The control and operation of energy-related systems in the hotel, restaurant, club, and institutional operation will be a focal point. Heating, lighting, and general maintenance systems will be thoroughly investigated. 3 credit hours.

HR 300 Meat Selection and Grading
This course deals with the major categories of beef, veal, lamb, and pork products from hotel, restaurant, club, and institutional standpoints. Nutritive value, structure and composition, sanitation, selection and purchasing, cutting, freezing, portion control and miscellaneous topics are covered. Laboratory Fee. 3 credit hours.

HR 300 Ski Resort Management
Principles of modern ski resort management as they pertain to staffing, controlling, directing and organizing an efficient and profitable ski resort will be emphasized. Seasonality, ski-lift design, food and beverage operations, equipment rentals and recreational facilties will be discussed. 3 credit hours.

HR 300 Resort Management
Emphasis upon recreation aspects, concession-stand management, outdoor activities and overall hotel resort management policies are stressed. The course will focus more generally upon the unique problems of resort hotel management and the application of special techniques to meet these problems. 3 credit hours.

HR 300 Historical Inns of Connecticut/New England
An examination and survey of the most reputable and profitable country inns throughout Connecticut and New England. Their historical development, attributes of longevity and management structure are emphasized. Field trips are required. 3 credit hours.

HR 300 Grand Hotel
An examination of the characteristics of the great hotels which established service goals for the industry. The course will survey development of the European and American palace hotels, the spa hotel, resort hotels and the small luxurious hotels. Particular attention will be paid to the contributions of famous chefs and managers, developments in hotel architecture, social events and public relations mechanisms, especially identification with famous personalities. Implications of this tradition for modern large hotels will be explored. 3 credit hours.

HR 300 Convention Bureau Management
An in-depth analysis of local, state and national convention bureaus and how they contribute to the economic and social stability of a community. Ways in which their efforts are coordinated with the hospitality industry will also be stressed. 3 credit hours.

HR 300 Computer Systems in the Hotel and Restaurant Industry
An introduction to information systems and computing machines within the hotel and restaurant industry. Students learn key-punching and programming skills for application to selected business problems. Programs will be executed on the university's computer. 3 credit hours.

HR 300 Food Service and Lodging Study Tours
Food service and lodging tours will be organized for academic credit. Domestic and/or international food service and lodging properties will be evaluated by students on a comparative basis. Management styles of operation will be scrutinized. 3 credit hours.

HR 300 Garde Manager
Students will be instructed in the practice of food embellishment and garnishing techniques adaptive to hotel and restaurant service. Special emphasis is placed upon meats, vegetables, salads, breads, cake decorations, hors d'oeuvres and desserts. Students will be evaluated on the merits of their ability to prepare selected food garnishes. Laboratory Fee. 3 credit hours.

HR 300 Pastry and Dessert Preparation
Emphasis is placed upon the techniques, preparation and presentation of pastries and desserts. Students will be evaluated on the merits of their ability to prepare selected desserts and pastries. Laboratory Fee. 3 credit hours.

HR 300 Franchising in the Hospitality Industry
A course designed to cover the specific steps involved in developing a franchise operation from the viewpoint of both the franchisor and the franchisee. Feasibility studies, real estate, plans and project costs, financing project analysis, corporate structure and operations are some of the topics to be studied. 3 credit hours.

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HR 300 Hospitality Investment Management
A survey of investment opportunities and the methods of analysis used by business and the individual to determine the best use of investment funds. Special emphasis is placed on the stock and bond markets, including security portfolio management. 3 credit hours.

HR 300 Hotel, Restaurant and Institutional Financial Analysis and Budgeting
Prerequisite: HR 321. An examination of the financial statements of several types of businesses in the hospitality industry. The methods of analysis are discussed, including cash budgeting, forecasting of revenue and expenses, capital expenditure planning and break-even point studies. The case study method will be used. 3 credit hours.

HR 300 Internal Control in Hotels
Discussion of the problems encountered in distributing the accounting and clerical work in hotels so as to provide a good system of internal control. Study of many actual cases on the failure of internal control and the analysis of the causes of the failure. Practical problems and actual techniques of functioning systems of internal control. 3 credit hours.

HR 300 Financial and Tax Aspects of the Leisure Time Industries
Financial and tax considerations associated with the acquisition, expansion and diversification of industries providing products and services for leisure time pursuits. Phases include the macroeconomics and microeconomics of the leisure time industries and the financial, tax and accounting considerations in acquisitions and mergers. 3 credit hours.

HR 300 Management of a Retail Food Service Operation
Supervision of food preparation and service in a retail operation is taught using university food services. Student managers are responsible for the preparation and service of foods which meet an institutional menu for two cafeterias. The preparation of foods for dining room, private function, and banquet menus is also controlled by the student managers as they rotate through the various preparation units. Quality and cost of foods presented to consumers are stressed. An integral part of the course involves coordination and cooperation with visiting professional chefs. Lectures and seminars in the theory and practice of management accentuate the practical management experience in the laboratories. 3 credit hours.

HR 300 Survey of Convenience Foods
Methods of food preservation are reviewed with special emphasis on the place of prepared foods in the commercial food operation. The student serves and evaluates prepared hors d'oeuvres, salads, soups, entrees, desserts and vegetables from the standpoints of quality, cost and menu adaptability. 3 credit hours.

HR 300 Catering for Special Functions
The systematic presentation of catering for special functions. Emphasis is placed on maximum sales potential through use of existing facilities. Lectures and demonstrations on banquet layout, menus, service and sales. 3 credit hours.

HR 300 Introduction to Properties Management
Basic principles of graphic communication as a management tool for problem solving are covered in this course, which includes drafting fundamentals and also the interpretation of both presentation and technical drawings. Principles of site analysis and site planning, physical plant organization and internal spatial relationships common to hotel and restaurant properties are stressed. 3 credit hours.

HR 300 Food Facilities Programming, Planning and Design
Lectures and laboratory deal with first-stage planning, which must be done by the owner or his consultant in the programming for any project of mass feeding. The many factors which must be programmed in order to satisfy all principal objectives are outlined: site selection, market analysis, kind of operation, merchandising program and surveys to determine the wants and needs of patrons to be served. Also included are research studies to resolve menu requirements, to plan for the particular type of service to be employed, to create desired atmosphere to program functions of personnel, to plan maintenance, analyze administrative objectives and to develop the major prospectus. Pro forma studies and feasibility studies research round out the coverage. 3 credit hours.

HR 300 Baking
The art and science of applying baking principles in food service and institutional settings is emphasized. Students will be evaluated on the merits of their baking abilities. Laboratory Fee. 3 credit hours.

HR 300 Hotel, Restaurant and Institutional Computer Applications
Prerequisites: CS 107. A survey of the computer systems used in the hospitality industry. The major emphasis will be on software packages and their impact on the management process. Laboratory Fee. 3 credit hours.

HR 300 Hotel, Restaurant and Institutional Uniform System of Accounts
Prerequisite: HR 321. Deals with the generation and analysis of quantitative information for the purpose of planning, control and decision making by managers at various levels in hospitality industry operations. Emphasis is placed on the need for and use of timely and relevant information as a vital tool in the management process. 3 credit hours.

HR 300 Hotel, Restaurant and Institutional Maintenance and Engineering
Emphasis will be placed on hotel and restaurant mechanical and electrical equipment, utilities and energy conservation. Examination is placed on the management of these services in hotel and restaurant operations. 3 credit hours.

HR 300 Hotel, Restaurant and Institutional Computer System Design
Prerequisites: CS 107. Advanced programming topics will be covered, computer system feasibility studies, and the designing of a computer system. Laboratory Fee. 3 credit hours.

HR 300 Hotel, Restaurant and Institutional Marketing Strategies
Prerequisite: HR 322. Deals with strategic marketing, the concept and the process; techniques will be analyzed for conducting sales blitzes, planning, target marketing, positioning strategy and advertising. 3 credit hours.

HR 300 Principles of Hotel and Restaurant Management
Prerequisite: HR 100. An introduction to the theories and principles of organizational/ managerial decision making and the management process as it relates to the hospitality Industry. 3 credit hours.

HR 300 Sanitation and Safety in the Hospitality Industry
The causes and prevention of food poisoning and accidental occurrences in the hospitality industry are stressed. Emphasis is placed on the current problems confronting the industry, with recent developments as they relate to sanitation and safety. Guidelines formulated by the National Sanitation Foundation and the Occupational Safety and Health Administration will be presented. 3 credit hours.

HR 304 Cultural Understanding of Foods and Cuisines
Prerequisites: DI 200, HR 100, HR 202, HR 204, HR 322, HR 325, HR 326. This course examines foods, including the culinary highlights and the historical and social implications of the foods of selected countries and regions. In addition to the preparation of many foods, which will be based on the components of menus and nutritive values, this course will trace the development of traditional cookery, eating customs, special serving techniques, and the mastery of unusual food production techniques and equipment. Laboratory experiences are provided with service to the public. Laboratory Fee. 3 credit hours.

HR 317 Supervised Field Experience II
Prerequisite: Consent of the instructor. 300 hours of field work in hotels, restaurants, institutions or clubs. The field experience will emphasize accounting procedures, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours.

HR 321 Hotel, Restaurant and Institutional Food Service Accounting and Auditing Procedures
Prerequisite: A 101. This course deals with financial accounting principles and practices for the hospitality industry. The Uniform System of accounts of the American Hotel and Motel Association will be followed. 3 credit hours.

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HR 322 Marketing and Sales Promotion for the Hospitality Industry
Prerequisite: HR 100. An analysis of aspects of the services market with emphasis on hotel and restaurant marketing. Internal and external stimulation of sales in competitive and noncompetitive markets; vagaries of environmental concepts; experimental techniques in industry-sponsored salesblitz activities. 3 credit hours.

HR 325 Food and Labor Cost Controls
Prerequisites: A 101, HR 100, HR 202, HR 321. Current methods and principles of food and beverage control and labor cost controls for hotels, restaurants and institutions. Emphasis will be placed on food and beverage cost control techniques. 3 credit hours.

HR 326 Personnel Management in the Hospitality Industry
Prerequisite: HR 100. Techniques and philosophies of personnel management as applied to various types of hospitality operations. 3 credit hours.

HR 330 Executive Maintenance and Engineering
Prerequisites: HR 100, HR 326. This course examines environmental and housekeeping services in public and private institutions. Emphasis is placed on the management of these services in educational and health care institutions and on the selection of materials, chemicals, equipment and labor to provide these services in a cost-quality manner. 3 credit hours.

HR 410 Systems and Operations
Prerequisites: HR 100, HR 326. Design, analysis and evaluation of hotel, restaurant and institutional food service administration systems and operations. Emphasis is placed upon analytical techniques and case study analysis. 3 credit hours.

HR 411 Food Service Equipment and Layout Design
Prerequisites: All required HR 100, HR 200, and HR 300-level courses. A study of building management, stressing the interdependence of planning, construction, equipment, maintenance, personnel and service to the on-premise customer. Layout studies, equipment design and budget estimation are studied. 3 credit hours.

HR 419 Supervised Field Experience III
Prerequisite: Consent of the instructor. 300 hours of field work in hotels, restaurants, institutions or clubs. The field experience will emphasize accounting procedures, and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours.

HR 512 Seminar in Hospitality
Prerequisites: All required HR 100, HR 200, and HR 300-level courses. Current topics and developments within the hospitality industry with emphasis on career development. Senior status or consent of the instructor is required. 3 credit hours.

HR 521 Supervised Field Experience IV
Prerequisite: Consent of the instructor. 300 hours of field work in hotels, restaurants, institutions or clubs. The field experience will emphasize computer applications and cost control procedures and will be accompanied by readings, reports, journals and faculty conferences. 3 credit hours.

HR 599 Independent Study
Prerequisite: Permission of the department chairman. Independent research projects or other approved phases of independent study. 3 credit hours.

Humanities

HU 300 Nature of Science
Prerequisite: E 110, HS 101, a laboratory science course, and a social science course. HU 300 investigates science as a human activity, as a social institution, and as an instrument for acquiring and using knowledge. It, therefore, deals with the nature of scientific knowledge, the organization of scientific activity and the interaction of science with technology and culture. It is a course about science and the process of generating new knowledge.

Industrial Engineering

IE 204 Engineering Economics
Prerequisite: M 117. A quantitative analysis of applied economics in engineering practice; the economy study for comparing alternatives; interest formulae; quantitative methods of comparing alternatives; intangible considerations; selection and replacement economy for machines and structures; break-even and minimum cost points; depreciation; effect of income taxes on the economy study; review of current industrial practices. Promotes logical decisions through the consideration of alternative courses of action. 3 credit hours.

IE 214 Engineering Management
Provides insight into the elements of the managerial process and develops a rational approach to the problem of managing productive processes and the engineering function. Focusing largely upon the complex problems of top- and middle-level management, this course investigates the modern tools that managers use under given circumstances, yet stresses the ongoing activities of management as part of an integrated, continuous process. 3 credit hours.

IE 223 Personnel Administration
Prerequisite: IE 214 or MG 125. Provides a foundation in fundamental concepts and a general knowledge of techniques in the administration of personnel relations. The nature of personnel administration, the handling of personnel problems, employee attitudes and morale. Techniques of personnel administration; recruitment and interviews, placement, training, employee rating. In addition, wage policies and administration related to the IE function are emphasized. In order to secure breadth and depth in the approach to personnel problems, case studies are used at appropriate points throughout the course. 3 credit hours.

IE 303 Cost Control
Prerequisite: M 118 and junior standing. Basic analysis of cost control techniques. Designed to give members of the management team the underlying rudiments of cost estimating and control systems. Theory of standard costs, flexible budgeting and overhead handling techniques emphasized by analytical problem solution. Life-cycle costing. Value engineering. 3 credit hours.

IE 304 Production Control
Prerequisite: IE 214, M 118 and junior standing. Operations management students may substitute MG 125 for the IE 214 prerequisite. The basic principles that govern production control in an industrial plant. The principles used in solving problems of procuring and controlling materials, in planning, routing, scheduling and dispatching are considered. Familiarizes the student with existing and new methods, used in this field including MRP, JIT, computer-aided process planning and group technology. 3 credit hours.

IE 343 Work Design
Prerequisite: IE 346. An introductory course in methods and in motion analysis and work measurement. Motion and methods analysis techniques including the principles of motion economy, process analysis charting, operations analysis, activity analysis and work design layout analysis. Students are required to design a work place project which will be filmed on closed-circuit television for analysis. Work measurement includes an introduction to time study fundamentals and predetermined time systems. Laboratory Fee. 4 credit hours.

IE 344 Human Factors Engineering
Prerequisite: IE 347. Covers psychological and physiological aspects of people at work, including: work physiology, information processing, motor skills and movement control, signal detection theory and anthropometery. 4 credit hours. Laboratory Fee.

IE 346 Probability Analysis
Prerequisite: M 203. Develops the theory of probability and related applications. Covers combinations and permutations, probability space, law of large numbers, random variables, conditional probability, Bayes' Theorem, Markov chains and stochastic processes. 3 credit hours.

IE 347 Statistical Analysis
Prerequisite: IE 346. Provides an introduction to the application of statistical techniques to industrial and engineering problems. Measures of central tendency and dispersion, estimation, hypothesis testing, correlation and regression, elementary analysis of variance. 3 credit hours.

IE 348 Manufacturing Processes
Corequisite: IE 304. Mill and manufacturing processes. The casting of metals, pattern making and mold preparing. Fabricating, metal cutting and welding. Demonstrations, laboratory and inspection trips to local manufacturing plants. 3 credit hours.

IE 402 Operations Research
Prerequisite: IE 346. The operations research area is oriented to various mathematical methods for solving certain kinds of industrial problems. Topics included are: linear programming, including simple method; transportation and assignment problems; queueing; dynamic programming; simulation. 3 credit hours.

IE 408 Systems Analysis
Prerequisites: IE 214, senior standing. Presents the analytical and conceptual techniques upon which systems analysis and development is based, and applications to business and industrial fields. Development of case studies and their application, oriented to the student's major area of interest. 3 credit hours.

COURSES

IE 435 Simulation and Applications
Prerequisites: IE 347 and either CS 224 or CS 228. Corequisite: IE 402. Techniques for mathematical modeling of a system (business or scientific/engineering) using computer simulation. Simulation principles will be emphasized. Student exercises and projects will be run using modern simulation packages. 3 credit hours.

IE 436 Quality Control
Prerequisite: IE 347. Economics of quality control; modern methods used by industry to achieve quality of product; preventing defects; organizing for quality; locating chronic sources of trouble; coordinating specifications, manufacturing and inspection; measuring process capability; using inspection data to regulate manufacturing processes; statistical methods, control charts, selection of modern sampling plans. 3 credit hours.

IE 437 Metrology and Inspection in Manufacturing
Prerequisite: IE 436. This is a course to study the metrology and inspection practices in manufacturing. Emphasis will be placed on the design and development of different types of gauging for inspection in manufacturing. 3 credit hours. Laboratory Fee.

IE 443 Facilties Planning
Prerequisites: IE 304, IE 343, senior IE standing. Factors in plant location, design and layout of equipment. The basic principles of obtaining information essential for carrying out such investigations. Survey of necessary functions of materials handling, storage and storeroom maintenance and use of service departments in modern factories. Students will undertake a design project assignment as a component of the course. 3 credit hours.

IE 448 Advanced Manufacturing Engineering Operations
Prerequisites: MT 200 and IE 348. A course for understanding the basic principles of the theory of metal cutting and metal working to improve the manufacturing engineering operations. The course will emphasize design and operation of better tooling for different types of manufacturing operations. Experimental investigation of metal cutting and metal working methodologies will be stressed. 3 credit hours. Laboratory Fee.

IE 449 Principles of Computer-Aided Manufacturing
Prerequisites: IE 448 and EE 211. A course on the principles and practices of computer-aided manufacturing that will emphasize the operating principles of numerical control, computer numerical control and direct numerical control machines. Both manual and computer assisted part programming will be discussed. 3 credit hours. Laboratory Fee.

IE 504 Senior Project
Prerequisite: senior status and permission of the department. The student, in conjunction with a faculty adviser, selects and works on a project. Work is presented at a seminar at the end of the semester. 3 credit hours.

IE 599 Independent Study
Prerequisite: IB 312, junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credit hours.

International Business

IB 312 International Business
Analysis of business environments with special emphasis on similarities and differences among the nations of the world, and views toward developing intercultural managerial effectiveness. 3 credit hours.

IB 421 Operation of the Multinational Corporation
Prerequisite: IB 312. Specific problems encountered by multinational firms. Topics include investment decisions, environmental scanning, planning and control and the social responsibilities of firms in host nations. 3 credit hours.

IB 549 International Business Policy
Prerequisite: MK 413, junior standing. Identification and relation of the elements involved in the dynamics of a company and its international environment through case analysis. This is a capstone course in international business. 3 credit hours.

IB 599 Independent Study
Prerequisite: IB 312, junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credit hours.

Journalism

J 101 Journalism I
A survey of journalism designed to acquaint students with the profession. The American newspaper as a social institution and a medium of communication. 3 credit hours.

J 102 Journalism II
Prerequisite: J 101. The basic principles of journalism and the organizational patterns of the mass media. Some practice in reporting and the writing of news and feature stories. 3 credit hours.

J 201 News Writing and Reporting
Prerequisites: J 101, J 102. The elements of news, the style and the structure of news stories, news-gathering methods, copyreading and editing, reporting. 3 credit hours.

J 202 Advanced News Writing and Reporting
Prerequisite: J 201. Intensive practice in news writing and reporting. 3 credit hours.

J 311 The Copy Desk
Intensive practice in copyreading, editing and revising, headline writing, photograph selection, page make-up, and reporting. Regular critiques of the copy-desk work of major newspapers. 3 credit hours.

J 351 Journalistic Performance
Students follow the coverage in the media given to selected topics, and prepare to make judgments of the coverage by doing research and becoming knowledgeable about the particular topic chosen. The course stresses analytical reading and responsible, informed criticism. 3 credit hours.

J 367 Interpretive and Editorial Writing
Practice in the writing of considered and knowledgeable commentaries on current affairs and in writing of interpretive articles based on investigation, research and interviews. 3 credit hours.

J 450-459 Special Topics in Journalism
Special topics in journalism which are of current or special interest.

J 599 Independent Study
Prerequisite: consent of the instructor and journalism coordinator. Opportunity for a student, under the direction of a faculty member, to explore an area of interest. 3 credit hours.

Law
(See Business Law)

Management Information Science

MS 200 Business Systems Analysis
A survey of the use and application of systems analysis to examine problems of both profit and non-profit business enterprises. Origins of systems analysis, basic concepts, and elements of systems and the systems approach. 3 credit hours.

MS 300 Microcomputers for Managers - Objectives
Designed to address the role that microcomputers play in management today. A detailed analysis covering the strengths and weaknesses of micros in the past, present and future. Attention will be given to microcomputer selection and user need requirements. To expose students to the microcomputer industry and how it affects the traditional information systems departments. 3 credit hours.

MS 400 Management Planning and Control Systems
Prerequisite: junior standing or consent of the instructor. An examination of current concepts, techniques and working practices necessary to develop and implement a system for management planning and control. Development of tools such as PERT, CPM and other network analysis systems; computer assisted decision making. 3 credit hours.

MS 401 EDP Security Planning - Objectives
A course designed to help EDP managers design, develop, install and monitor computer security systems. A close look is taken at the fast paced growth in computer related crime area. Guidelines will be developed for computer crime prevention and disaster planning. To teach students how to recognize computer crime and the potential for staggering business losses. Special emphasis will be placed upon teaching how to plan for the unexpected. 3 credit hours.

MS 460 Information Systems for Operations and Management
Prerequisite: junior standing or consent of the instructor. A development of the steps necessary to design and implement an integrated information system which can benefit all levels of management. Analysis of information requirements, design approaches, processing methods, data management, organizational and social implications, planning and control systems, analytical and simulation models. 3 credit hours.

COURSES

Management

MG 120 Development of American Sports
A survey of the American Sports Industry and how it relates to society: issues and problems in national and international sport activities. An analysis of current sport issues and trends. 3 credit hours.

MG 125 Management and Organization
A study of management systems as they apply to all organizations. Managerial functions, principles of management, and other aspects of the management process are examined. 3 credit hours.

MG 130 Management of Sports Industries
A survey of the principles of management applicable to the administration of aspects of sports enterprises: planning, controlling, organizing, staffing and directing of the various activities necessary for effective functioning. 3 credit hours.

MG 231 Management of Human Resources
Prerequisite: MG 125. A survey of the industrial relations and the personnel management system of an organization. Manpower planning/forecasting; labor markets; selection and placement; training and development; compensation; government/employer and labor/management relations. 3 credit hours.

MG 232 Industrial Relations
Prerequisite: MG 125. A study of the development of American trade unions and the various stages of their relationship with business ownership and management, their structure and strategies, labor legislation and their impact. Negotiation strategies, causes of and strategies for resolving labor conflict. Attaining union-management cooperation. 3 credit hours.

MG 235 Public Relations in Sports
A study of individual and group behavior as they relate to the press, politicians, parents, broadcasting and other groups that require interpersonal relationships in daily decision making. 3 credit hours.

MG 317 Small Business Management
Prerequisite: MG 125. A realistic examination of some of the characteristics, opportunities, risk-taking, and decision-making in new business enterprises or self-employment ventures. 3 credit hours.

MG 324 Development of Managerial Theory
Prerequisite: MG 125. Study of the development of modern management and organization theory. Past and present research in the field will be analyzed and applied to current practices. 3 credit hours.

MG 325 Sports Industries and the Law
Legal aspects as they relate to professional and amateur sport institutions. An analysis of legal problems and issues confronting the sports manager; suits against the organizational structure, safety, collective bargaining and arbitration and antitrust violations 3 credit hours.

MG 332 Management of Compensation
Prerequisite: MG 231. A study of all aspects of the compensation process; criteria used in developing pay scales, merit systems and fringe benefits and techniques for administration and control of established systems. 3 credit hours.

MG 350 Advanced Management
Prerequisite: MG 125. A reinforcement of the principles and practices of management and organization theory from MG 125. Application of management practices to the functional areas, the human factor in organizations, current research and readings. 3 credit hours.

MG 415 Multinational Management
Prerequisites: IB 312, MG 125. An analysis and examination of management and organizational behavior against a background of diversified cultural systems. 3 credit hours.

MG 430 Financial Management for Sports Administration
Prerequisite: FI 113. Methods and procedures as they apply to sports administration, taxation, purchasing, cost analysis, budgeting and the financial problems dealing with mass media. 3 credit hours.

MG 450-454 Special Studies in Business
Prerequisite: junior standing. Special studies in business and public administration. Work may include study and analysis of specific problems within units of business or government and application of theory to those problems, programs of research related to a student's discipline, or special projects. Several sessions may run concurrently. 3 credit hours.

MG 455 Managerial Effectiveness
Prerequisites: MG 324, MG 350. An examination of current practices used in identifying and developing effective managers. The problems of the managerial environment, approaches used to alleviate these problems, development of organizational and managerial effectiveness. 3 credit hours.

MG 470 Management of Corporate Culture
Prerequisites: MG 125, junior or senior standing. A study of Corporate Culture. Its development and influence on business strategies, organizational performance, development and change and affects on managerial effectiveness. 3 credit hours.

MG 512 Contemporary Issues in Business and Society
Prerequisite: senior standing. A rigorous examination of competing concepts of the role of business in society. A capstone, integrative course relating the firm to its environment including issues arising from aggregate social, political, legal and economic factors. 3 credit hours.

MG 515 Management Seminar
Prerequisite: senior standing. An introduction to contemporary publications and the findings of research study reports. Analysis, interpretation and determination of impact of publications on the theory and practice of management. 3 credit hours.

MG 520 Current Issues in Human Resource Management
Prerequisite: MG 231. Examine research findings and current literature relevant to issues affecting personnel functions in the organization. 3 credit hours.

MG 550 Business Policy
Prerequisite: senior standing. An examination of organizational policies from the viewpoint of top-level executives, and a development of analytical frameworks for achieving the goals of the total organization. Discussion of cases and development of oral and written skills. 3 credit hours.

MG 560 Business Systems Simulation
Prerequisite: QA 216. The design, development and application of computer simulation models as tools of analysis for business, economic and electronic computer systems. Deterministic and stochastic decision models, computer simulation languages. Computer Use Fee. 3 credit hours.

MG 599 Independent Study
Prerequisite: project, student and faculty director must be approved by the department chairman and the dean of the business school. Independent study on a project of interest to the student under the direction of a faculty member designated by the department chairman. 3 credit hours.

Marketing

MK 105 Principles of Marketing
The fundamental functions of marketing involving the flow of goods and services from producers to consumers. Marketing methods of promotion, pricing, product decisions and distribution channels. 3 credit hours.

MK 121 Retailing
Prerequisite: MK 105. Introductory survey course of the problems and opportunities in the retail distribution field including a basic understanding of buying, selling and promotion of the retail consumer market. 3 credit hours.

MK 205 Consumer Behavior
Prerequisite: MK 105. A study of the principal comprehensive marketing models which focus on buyer decision processes. Topics include brand switching decisions, measures of media effectiveness, market segmentation and other marketing techniques. 3 credit hours.

MK 302 Industrial Marketing
Prerequisite: MK 105. Practices and policies in the distribution of industrial goods including purchasing, market analysis, channels of distribution, pricing, competitive practices and operating costs. 3 credit hours.

MK 307 Advertising and Promotion
Prerequisite: MK 105. The design, management and evaluation of the various communications programs involved in marketing and public relations. 3 credit hours.

MK 316 Sales Management
Prerequisite: MK 105. The management of a sales organization. Recruiting, selecting, training, supervision, motivation and compensation of sales personnel. 3 credit hours.

MK 413 International Marketing Management
Prerequisites: IB 312, MK 105. Applied marketing decision making in international firms. The development of marketing strategy and techniques in foreign markets. 3 credit hours.

COURSES

MK 442 Marketing Research and Information Systems
Prerequisites: MK 105, QA 216, junior standing. Research as a component of the marketing information system. Research design, sampling methods, data interpretation and management of the marketing research function. 3 credit hours.

MK 470 Business Logistics
Prerequisites: MK 105, QA 118, junior standing. The design and administration of systems to control physical product flows. Both spatial and temporal constraints are treated in the development of transportation, warehousing and manufacturing systems. 3 credit hours.

MK 515 Marketing Management
Prerequisites: MK 105, MK 442, senior standing. The analysis, planning and control of the marketing effort within the firm. Emphasis is on case analysis. This is a marketing capstone course. 3 credit hours.

MK 599 Independent Study
Prerequisites: MK 105, junior standing. A planned program of individual study under the supervision of a member of the faculty. 3 credit hours.

Mathematics

All prerequisites for the following mathematics courses must be strictly observed unless waived by permission of the mathematics department. Courses marked with a dagger (†) will be offered at the discretion of the department. Courses marked with an asterisk (*) are offered every semester.

***M 103 Fundamental Mathematics**
Required at the inception of the program of study of all students (day and evening) who do not show sufficient competency with fundamental arithmetic and algebra, as determined by placement examination. Review and individualized help as needed in the arithmetic of whole numbers, decimals, fractions, and percents. Introduction to sets. Elementary algebra. Topics from logic, probability, and statistics as time permits. (Students placed in M 103 must successfully complete this course before taking any other course having mathematical content.) Students who take M 103 will have the total number of credits required for graduation increased by 3 credits. 3 credit hours (4 to 6 hours per week).

***M 105 Introductory College Mathematics**
Introductory college mathematics for the liberal arts student including a variety of mathematical ideas chosen to illustrate the nature and importance of mathematics in human culture. An inductive approach based on experimentation and discovery. 3 credit hours.

***M 109 Elementary College Algebra**
Prerequisite: M 103 or placement by the department. A review of the fundamental operations and an extensive study of functions, exponents, radicals, linear and quadratic equations. Addtional topics include ratio, proportion, variation, progression and the binomial theorem. 3 credit hours.

***M 115 Pre-Calculus Mathematics**
Prerequisite: a grade of C or higher in M 109 or placement by the department. Designed to offer the foundation needed for the study of calculus. Polynomials, algebraic functions, elementary point geometry, plane analytic trigonometry and properties of exponential functions. 4 credit hours.

†M 116 Survey of Calculus
Prerequisite: M 115. An intuitive approach to topics in functions, analytic geometry, differential and integral calculus and probability. Designed for insight into, and appreciation of, the methods of analysis. 3 credit hours.

†M 117 Calculus I
Prerequisite: a grade of C or higher in M 115 or placement by the department. The first-year college course for majors in mathematics, science and engineering; and the basic prerequisite for all advanced mathematics. Introduces differential and integral calculus of functions of one variable, along with plane analytic geometry. 4 credit hours.

***M 118 Calculus II**
Prerequisite: M 117. Continuation of first-year calculus, including methods of integration, the fundamental integration theorem, differentiation and integration of transcendental functions and varied applications. 4 credit hours

M 121 Algebraic Structures I
A first course in an orientation to abstract mathematics: elementary logic, sets, mappings, relations, operations, elementary group theory. Open to all freshman and sophomores. 3 credit hours.

†M 122 Algebraic Structures II
Prerequisite: M 121 or permission of the department. A continuation of M 121 including a variety of topics. 3 credit hours.

***M 127 Finite Mathematics**
Prerequisite: M 103 or placement by the department. Basic discrete functions with numerous applications in the social sciences. Topics include elementary set theory and counting techniques, functions and graphs, an introduction to computing and computers, an introduction to probability. 3 credit hours.

M 137 Calculus Topics
Prerequisite: consent of the department. The theoretical material of the standard first year of calculus, including limits, chain rules, mean value theorems and a discussion of the fundamental theorem of integral calculus. Upon successful completion, the student is qualified for M 203. 4 credit hours.

***M 203 Calculus III**
Prerequisite: M 118. The calculus of multiple variables, covering third-dimensional topics in analytics, linear algebra, and vector analysis, plus partial differentiation, multiple integration, infinite series and indeterminate forms. 4 credit hours.

***M 204 Differential Equations**
Prerequisite: M 203. The solution of ordinary differential equations, including the use of Laplace transforms. Existence of solutions, series solutions, matrix methods, nonlinear equations and varied applications. 3 credit hours.

M 228 Elementary Statistics
Prerequisite: M 127. A non-calculus based course which includes basic probability theory, random variables and their distributions, estimation and hypothesis testing, regression and correlation. Emphasis on an applied approach to statistical theory with applications chosen from many different fields of study. Students will be introduced to and make use of the computer packages SPSS for data analysis. (Not open to students who have taken calculus.) Computer use fees. 4 credit hours.

M 270 Discrete Structures
Prerequisites: M 118 and CS 102 or CS 106. Corequisite: M 203. This course introduces the student to the discrete structures underlying the mathematical foundations of computer science. Topics include sets and relations, recursive and inductive procedures, functions, groups and semigroups, Boolean algebras, elementary combinatorics, and algorithm analysis. Applications of the above topics to computer science will be studied. 3 credit hours.

†M 301 Linear Analysis
Prerequisites: M 204, M 311. Linear vector spaces, infinite series, transformations, generalized Fourier series, solutions of partial differential equations. 3 credit hours.

M 303 Advanced Calculus
Prerequisite: M 204. A survey course in applied mathematics. Vector calculus: line and surface integrals, integral theorems of Green and Stokes, and the divergence theorem. Complex variables: elementary functions, Cauchy-Riemann equations, integration, Cauchy integral theorem, infinite series, calculus of residues and conformal mapping. 3 credit hours.

M 309 Advanced Differential Equations
Prerequisite: M 204. Theoretical analysis and applications of non-linear differential equations. Phase plane and space, perturbation theory and techniques, series and related methods, stability theory and techniques and relaxation phenomena. 3 credit hours.

***M 311 Linear Algebra**
Prerequisite: M 203. Matrices, systems of linear equations and their solutions, linear vector spaces, linear transformations, eigenvalues and eigenvectors. Applications. 3 credit hours.

M 321 Modern Algebra I
Prerequisites: M 121, M 231. Groups, rings, integral domains, fields, polynomials. 3 credit hours.

†M 325 Number Theory
Prerequisite: M 121. Topics are selected from the following: mathematical induction, Euclidean algorithm, integers, number theoretic functions, Euler-Fermat theorems, congruence, quadratic residues and Peano axioms. 3 credit hours.

M 331 Applied Combinatorics
Prerequisite: M 270 or permission of department. Problem solving using graph theory and combinatorical methods. Topics include counting methods, recurrence, generating functions, enumeration, graphs, trees, coloring problems, network flows and matchings. Special emphasis on reasoning which underlies combinatorical problems solving, algorithm development and logical structure of programs. 3 credit hours.

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M 338-339 Numerical Analysis I and II
Prerequisites: M 204, CS 102 or CS 106. Approximation and error evaluation. Finite difference approximation by polynomial and orthogonal series, solutions of ordinary differential equations; solutions of elliptic, parabolic, and hyperbolic partial differential equations; interpolation and basic integral equation solutions. Computer Use Fee. 6 credit hours.

†M 341 Sets and Ordered Structures
Prerequisite: M 121. Axiomatic set theory based on the Zermelo-Fraenkel theory, algebra of sets, relations and functions, finite and infinite sets, order, axiom of choice and its equivalents. 3 credit hours.

†M 343 Projective Geometry
Prerequisites: M 121, M 231. Projective transformations, fixed points, invariants, cross-ratio, conics, Euclidean and non-Euclidean geometeries. 3 credit hours.

†M 345 Tensor Analysis
Prerequisites: M 204, M 311. The properties of vectors and tensors in Cartesian and in general curvilinear coordinate systems. Topics covered include: invariance properties, transformation laws, calculus of tensors, covariant differentiation, surface theory. Applications are considered in areas such as rigid body dynamics, elasticity, fluid mechanics, electricity and magnetism and geometry. 3 credit hours.

M 361 Mathematical Modeling
Prerequisites: M 311 and at least junior standing. Problem solving through mathematical model building. Emphasis on applications of mathematics to the social, life and managerial sciences. Topics are selected from probability, graph theory, Markov processes, linear programming, optimization, game theory, simulation. Computer Use Fee. 3 credit hours.

M 371 Probability and Statistics I
Prerequisite: M 203. Axiomatic study of probability: sample spaces, combinatorial analysis, independence and dependence, random variables, distribution functions, moment generating functions, central limit theorem. 3 credit hours. Offered each fall semester.

†M 381 Real Analysis I
Prerequisite: M 203. Foundations of analysis, sets and functions, real and complex number systems; limits, convergence and continuity, sequences and infinite series, differentiation. 3 credit hours.

M 403 Techniques in Applied Mathematics
Prerequisite: M 204. Techniques in applied analysis including Fourier series; orthogonal functions such as Bessel functions, Legendre polynomials, Chebychev polynomials,, Laplace and Fourier transforms; product solutions of partial differential equations and boundary value problems. 3 credit hours.

†M 412 Real Analysis II
Prerequisite: M 381. Continuation of M 381 including Riemann-Stieltjes integration theory and an introduction to measure theory and the Lebesgue integral. 3 credit hours.

†M 422 Modern Algebra II
Prerequisite: M 321. Continuation of M 321 including topics such as: vector spaces, modules, commutative ring theory, Galois theory. 3 credit hours.

M 423 Complex Variables
Prerequisite: M 204. For mathematics, science and engineering students. Review of elementary functions and Euler forms; holomorphic functions, Laurent series, singularities, calculus of residues, contour integration, maximum modulus theorem, bilinear and inverse transformation, conformal mapping, and analytic continuation. 3 credit hours.

†M 441 Topology
Prerequisite: M 381. Topics selected from the following: Hausdorff neighborhood relations: derived, open and closed sets; closure; topological space; bases; homeomorphisms; relative topology; product spaces; separation axioms; metric spaces; connectedness and compactness. 3 credit hours.

M 472 Probability and Statistics II
Prerequisite: M 371. Elements of the theory of point estimation, maximum likelihood estimates, theory of testing hypotheses, power of a test, confidence intervals, linear regression, experimental design and analysis of variance, correlation, and nonparametric tests. 3 credit hours.

M 473 Advanced Statistical Inference
Prerequisite: M 472. This course is designed to provide an in depth treatment of statistical inference. Topics include distribution of functions of one or several random variables, N-P structure of tests of hypothesis, properties of "good" estimators and the multivariate normal distribution. 3 credit hours.

M 481 Linear Models I
Prerequisite: M 472. This course is designed to provide a comprehensive study of linear regression. Topics include simple linear regression, inference in simple linear regression, violations of model assumptions, multiple linear regression and the Extra Sum of Squares Principle. 3 credit hours.

M 482 Linear Models II
Prerequisite: M 481. Continuation of M 481, with an emphasis on experimental design. Topics include single-factor designs, two-factor designs, multiple-factor designs and randomized block designs. 3 credit hours.

M 491-499 Department Seminar
A study of a mathematical topic or topics not covered in the above courses. Subject of study will be announced by the mathematics department in advance. A paper and/or seminar talk, suitable for presentation to all interested mathematics faculty, will be required. 3 credit hours.

M 599 Independent Study
Prerequisite: consent of faculty member and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Materials Technology

MT 200 Engineering Materials
Prerequisite: CH 103. A study of the properties of the principal engineering materials of modern technology: steels and nonferrous alloys and their heat treatment, concrete, wood, ceramics and plastics. Gives engineers sufficient background to aid them in selecting materials and setting specifications. 3 credit hours.

MT 219 Physical Metallurgy
Prerequisite: CH 105. Introduction to the relationships between atomic structure and macroscopic properties such as mechanical strength and ductility. Atomic bonding, crystallography, phase equilibrium and phase transformations are among the topics considered. 3 credit hours.

MT 220 Electronic Materials
Prerequisite: PH 205. Study of transport and rearrangement of charge to determine electric and magnetic properties of solids. Semiconductors, superconductors and magnetic materials are among the topics considered. 3 credit hours.

MT 301 Welding Metallurgy
Prerequisite: MT 219. Study of welding and brazing procedures of ferrous and nonferrous alloys, with consideration of macro and microstructures of welded members. 3 credit hours.

MT 302 Polymeric Materials
Prerequisite: CH 105. Chemistry and physical properties of rubber and plastic materials. Consideration of both fundamental principles and engineering applications. 3 credit hours.

MT 304 Mechanical Behavior of Materials
Prerequisite: MT 219. Detailed study of elastic and plastic deformation of materials at room temperature and elevated temperatures. Dislocation theory and microplasticity models considered. 3 credit hours.

MT 310 Materials Laboratory
Prerequisite: MT 219. Laboratory documentation of the effects of heat treatment in annealing and hardening both ferrous and nonferrous materials. Microscopic observation and photography. Other experiments in materials engineering. Laboratory Fee. 3 credit hours.

MT 324 Nuclear Reactor Materials
Prerequisite: MT 219. Consideration of nuclear reactors, the production and fabrication of metals and alloys used as reactor components, non-destructive testing and radiation damage of materials. 3 credit hours.

MT 331 Nonferrous Metallurgy
Prerequisite: MT 219. The physical metallurgy of aluminum, copper, magnesium and other nonferrous metals. Alloying, fabrication and consideration of materials properties which make nonferrous metals ocmpetitive with steels. 3 credit hours.

MT 342 Steels and Their Heat Treatment
Prerequisite: MT 219. Fundamentals of ferrous physical metallurgy such as iron-carbon phase diagram, transformation diagrams, hardenability and the effects of alloying elements. Heat treating discussed in terms of resulting microstructures and physical properties. 3 credit hours.

COURSES

MT 400 Materials Reactions
Prerequisite: MT 219. Consideration of chemical reaction in the liquid and solid state of importance to the field of materials engineering. Topics include extractive metallurgy, internal oxidation, surface treatment and recycling of secondary materials. 3 credit hours.

MT 450 Special Topics in Materials
Prerequisite: Instructor's consent. In-depth study of topics chosen from areas of particular and current interest to materials and engineering students. 3 credit hours.

MT 500 Research Project
Prerequisites: MT 331, MT 342, senior status. An independent design, theoretical analysis or laboratory investigation, chosen by the student and approved by the chairman of the department. The work is performed by the student with frequent critiques by a faculty member. 3 credit hours.

Mechanical Engineering

ME 101 Engineering Graphics
Fundamentals of orthographic projections, pictorial views, auxiliary views, surface intersections, dimensioning and tolerancing. Introduction to computer-aided drafting in two and three dimensions. Construction, scaling, and rotation of computer-generated wire-frame models. 3 credit hours.

ME 204 Dynamics
Prerequisite: CE 201 or instructor's consent. M 118 (M 118 may be taken concurrently). Kinematics and dynamics of particles and rigid bodies with emphasis on two-dimensional problems. Vector representation of motion in rectangular, polar and natural coordinates. Impulse-momentum and work-energy theorems. Rigid bodies in translation, rotation and general plane motion. 3 credit hours.

ME 215 Instrumentation Laboratory
Laboratory experiments introducing equipment and techniques used to measure force, static displacement, dynamic motion, stress, strain, fluid flow, pressure, and temperature. Introduction to data acquisition, data analysis and control using microcomputers. Laboratory Fee. 2 credit hours.

ME 301 Thermodynamics I
Prerequisite: M 118. Classical thermodynamics treatment of first and second laws. Thermal and caloric equations of state. Closed and open systems, and steady flow processes. Absolute temperature, entropy, combined first and second laws. Power and refrigeration cycles. 3 credit hours.

ME 302 Thermodynamics II
Prerequisites: ME 301, M 203 (M 203 may be taken concurrently). Extensions and applications of first and second laws; availability, combustion process, phase and chemical equilibrium, ideal gas mixtures. Maxwell's relations. Advanced thermodynamic cycles. 3 credit hours.

ME 307 Strength of Materials II
Prerequisite: CE 202. Elastic and plastic behavior of structural elements such as beams, columns and shafts under direct and combined loading. Ultimate strength design, theory of failure, composite member design and an introduction to indeterminate structures. 3 credit hours.

ME 311 Machine Elements
Prerequisite: CE 202. Analysis and design of machine elements to meet specified operating conditions. Stresses, deformations and other factors in design of machine parts. Static theories of failure. Fatigue strength, endurance limit and fatigue design methods via Soderberg and Goodman diagrams. Finite life design. Application to machine elements such as screws, bolts, ball and roller bearings, clutches and brakes. 3 credit hours.

ME 312 Mechanical Design
Prerequisite: ME 311 or instructor's consent. Continuation of ME 311. Topics include shaft design, springs, hydrodynamic lubrication, gears. Design project. 3 credit hours.

ME 315 Mechanics Laboratory
Prerequisites: CE 202, ME 204, ME 215. Laboratory experiments in mechanics of materials, vibration analysis, computer-aided data acquisition and analysis. Emphasis placed on measurement techniques, report writing, and error analysis. Laboratory Fee. 2 credit hours.

ME 343 Mechanisms
Prerequisite: ME 204. Graphic and analytical methods for determining displacements, velocities and accelerations of machine components. Application to simple mechanisms such as linkages, cams, gears. 3 credit hours.

ME 344 Mechanics of Vibration
Prerequisites: ME 204, M 204. The mathematical relationships necessary for the solution of problems involving the vibration of lumped and continuous systems; damping; free and forced motions; resonance; isolation; energy methods; balancing; single, two and multiple degrees of freedom; vibration measurement. 3 credit hours.

ME 401 Mechanical Systems Analysis
Prerequisites: ME 204, M 204. Dynamic systems and their characteristics. Analogy of electrical, mechanical and other systems. Mixed systems; dimensional analysis; design considerations. 3 credit hours.

ME 403 Introduction to Flight Propulsion
Prerequisites: ME 422, instructor's consent. A senior course designed for those students who intend to work or pursue further studies in the aerospace field. Among the topics covered are: detonation and deflagration, introductory one-dimensional non-steady gas flows, basic concepts of turbomachinery and survey of the contemporary propulsive devices. Shock tubes, supersonic wind tunnels and flame propagation demonstrations accompany the lectures. 3 credit hours.

ME 404 Heat and Mass Transfer
Prerequisites: ME 302, ME 421 (ME 421 may be taken concurrently), M 204. Conduction in solids, solution of multi-dimensional conduction problems, unsteady conduction, radiation, boundary layer and convection. Introduction to mass transfer. The lectures include occasional demonstrations of convection, radiation, heat exchangers. 3 credit hours.

ME 405 Advanced Mechanical Design
Prerequisites: ME 312, ME 421. Selected advanced topics related to the design of machine elements such as hydrodynamic theory of lubrication and principles of hydraulic machines with application to hydraulic couplings. 3 credit hours.

ME 406 Turbomachinery
Prerequisites: ME 302, ME 421. Review of basic thermodynamics and fluid mechanics. Dimensional analysis. Specific speed. Classification of turbomachines. Cavitation. Losses. Definitions of efficiency. Theories of turbomachines. Design considerations for stator blades and rotor blades. Computer-aided design. 3 credit hours.

ME 407 Solar Energy Thermal Processes
Prerequisite: ME 404 (may be taken concurrently). Introduction to the fundamentals of solar energy thermal processes including solar radiation, flat plate and focusing collectors, energy storage, hot water heating, cooling and auxiliary system components. Emphasis on the design and evaluation of systems as they pertain to commercial and residential buildings. 3 credit hours.

ME 408 Advanced Mechanics
Prerequisites: ME 204, M 204. Plane and spatial motion of particles and rigid bodies, inertia tensor, relative motion, gyroscopes, central force motion. Lagrangian and Hamiltonian methods. 3 credit hours.

ME 410-411 Introduction to Nuclear Engineering I and II
Prerequisite: M 204. The fundamental scientific and engineering principles of nuclear reactor systems. Reactor design and behavior related to fission process, its associated radiations and engineering principles. 6 credit hours.

ME 415 Thermo/Fluids Laboratory
Prerequisites: ME 215, ME 302, ME 421, ME 404 (ME 404 may be taken concurrently). A survey of experiments and laboratory investigations covering the areas of fluid mechanics, thermodynamics, heat transfer and gas dynamics. Laboratory Fee. 2 credit hours.

ME 421 Fluid Mechanics
Prerequisites: ME 204, M 204. Fluid kinematics; continuity equation, vector operations. Momentum equation for frictionless flow; Bernoulli equation with applications. Irrotational flow; velocity potential, Laplace's equation, dynamic pressure and lift. Stream function for incompressible flows. Rotational flows; vorticity; circulation, lift and drag. Integral momentum analysis. Navier-Stokes equation; stress tensor. Newtonian fluid. Boundary layer approximations. 3 credit hours.

ME 422 Introduction to Gas Dynamics
Prerequisites: ME 302, ME 421. Compressible fluid flow with emphasis on one-dimensional ducted steady flows with heat transfer, frictional effects, shock waves and combined effects. Introductory considerations of two- and three-dimensional flows. Occasional demonstrations accompany the lectures. 3 credit hours.

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ME 425 Senior Design Project
Prerequisites: ME 312 and senior status. Group design projects under faculty supervision. Design of devices, machines or processes constituting solutions to open-ended problems. Projects carried through from conception to design drawings or to prototype construction, testing and evaluation. Topics selected from areas of mechanical and thermo/fluid systems. Report and presentation at the end of semester. 3 credit hours.

ME 450 Special Topics in Mechanical Engineering.
Prerequisite: Instructor's consent. In-depth study of topics chosen from areas of particular and current interest to mechanical engineering students. 3 credit hours.

ME 512 Senior Seminar
Open to seniors with chairman's approval. Individual oral presentations by students of material researched on topics selected by students and faculty at the beginning of the term. 3 credit hours.

ME 599 Independent Study
Prerequisites: consent of faculty supervisor and approval of department chairman. Independent study provides an opportunity for the student to explore an area of special interest under faculty supervision. 1-3 credit hours per semester with a maximum of 12.

Music

MU 106 Chorus
Styles of group singing, survey of choral music literature from around the world. 3 credit hours.

MU 111 Introduction to Music
Basic forms and styles of music in the Western World. Music appreciation. 3 credit hours.

MU 112 Introduction to World Music
Non-Western musical styles, their cultures and aesthetics; music of the indigenous cultures of the Americas and the advanced musics of the Near East and Far East; emphasis on India, the Orient, Southeast Asia, Africa and Indonesia. 3 credit hours.

MU 116 Performance
Open to all students interested in ensembles or private instruction. Students with adequate scholastic standing may carry this course for credit in addition to a normal program. 1-8 credit hours; maximum 3 credit hours per semester.

MU 150-151 Introduction to Music Theory
Fundamentals of music: notation, physical and acoustical foundations; harmony and melody; modality, tonality, atonality; consonance and dissonance; tension; introductory composition; and ear training. 6 credit hours.

MU 175-176 Musicianship I and II
Prerequisites: MU 111 or 112; MU 150. Development of practical skills essential to performers and ensemble directors: ear training, sight singing, dictation, transcription, arranging, notation, score writing. 6 credit hours.

MU 198-199 Introduction to American Music
Music of the North American continent from the Puritans to the present day; both European and non-European musical traditions, with emphasis on twentieth century developments. 6 credit hours.

MU 201-202 Analysis and History of European Art Music
The growth of Western art music from its beginnings to the present day. Analysis of musical masterpieces on a technical and conceptual basis. 6 credit hours.

MU 211 History of Rock
Study of rock music as a musical tradition and social, political and economic phenomenon. Ethonomusicological and historical examination of rock from its pre-1955 roots to the present. 3 credit hours.

MU 221 Film Music
A course designed for both music and communication majors. Introduces students to the art, science and history of musical scores in film. Class work includes viewing and analysis of films with significant cueing and an introduction to the musical repertoire available to the film maker. 3 credit hours.

MU 250-251 Theory and Composition
Investigation of music theory in various parts of the world, including the Western Art Tradition. Exercises in the composition of music within these theoretical constructs. Ear training and keyboard harmony. 6 credit hours.

MU 299 Problems of Music
Music as an art form throughout the world. Music aesthetics and its relationship to the performance and composition of music. 3 credit hours.

MU 300 Studies in Music I
Area studies in music and its parent culture. Cultural theory as related to the music; instruments of the area and their etymologies; performance practices; the social role of music, both art and folk. Areas offered depend on availability of staff: China, Japan, the Near East, the Indian subcontinent, Africa, American Indian, Afro-American, Latin America, the Anglo-Celtic tradition and others. 3 credit hours.

MU 301 Recording Fundamentals
A study of the fundamentals of sound recording technique and methodology: acoustics microphones, microphone placement, tape formats and formulations, tape recorders, mono and stereo recording, live recording, mixers, signal processing. This course also emphasizes the importance of sound aesthetics and ethics in the sound recording process. 3 credit hours.

MU 311-312 Multitrack Recording I and II
Prerequisite: MU 301. Two semester course in the technique and methodology of multitrack studio and live recording. Includes detailed study of multiple tracking, mixing consoles, overdubbing, ping-ponging, tape recorders, signal processing, and mastering. 6 credit hours.

MU 350 Studies in Music II
Area studies in musical forms; their history, evolution, and resultant metamorphoses, performance practices, and extant forms. Areas offered depend upon availability of staff. 3 credit hours.

MU 401-402 Recording Seminar/ Project I and II
Prerequisite: MU 312. Each student will complete a professional quality recording production or research and development project. Work may consist of internship or co-op experience in a professional recording studio. Seminar will also include presentations on areas of professional interest such as career opportunities and new development in studio technique and technology. 6 credit hours.

MU 416 Advanced Performance
Prerequisite: constent of the department staff and a faculty adviser. Preparation and presentation of an instrumental or vocal performance indicating sufficient proficiency to warrant the awarding of a degree in world music. 3 credit hours.

MU 500 Seminar in Advanced Research
Prerequisite: permission of the instructor. Bibliographical studies of major world music areas; investigation of current and historical musicological theories, analysis and criticism of musicological area literatures. 3 credit hours.

MU 550 Studies in Urban Ethnic Music
Prerequisite: consent of the instructor. The music tradition of inner-city ethnic groups; emphasis on the operation of the oral tradition in the preservation of cultural values and customs as evidenced through music. Classroom discussion will be balanced by field research in the urban vicinity. 3 credit hours.

MU 599 Independent Study
Opportunity for the student under the direction of a faculty member to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Occupational Safety and Health

SH 100 Safety Organization and Management
History and development of the safety movement, nature and extent of the problem, development of worker's compensation, development of safety programs, cost analysis techniques, locating and defining accident sources, analysis of the human element, employee training, medical services and facilities and the what and how of the Occupational Safety and Health Act. 3 credit hours.

SH 110 Accident Conditions and Controls
Prerequisite: SH 100. Mechanical hazards, machine and equipment guarding, boilers and pressure vessels, structural hazards, materials handling hazards and equipment use, electrical hazards, personal protective equipment. 3 credit hours.

SH 200 Elements of Industrial Hygiene
Prerequisites: PH 103, SH 110, CH 103, or CH 115. Analysis of toxic substances and their effect on the human body. Analysis and effect of chemical hazards, physical hazards of electromagnetic and ionizing radiation, abnormal temperature and pressure, noise, ultrasonic and low-frequency vibration; sampling techniques including detector tubes, particulate sampling, noise measurement and radiation detection; governmental and industrial hygiene standards and codes. 3 credit hours.

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SH 201 Evaluation of the Occupational Environment
Prerequisite: SH 200. Current methods and techniques used in evaluating the occupational environment. Instruction on how to use the instruments necessary to measure ventilation, non-ionizing radiation, airborne contaminants, noise and heat stress. Instruction on how to present data and prepare reports will also be included. 3 credit hours.

SH 210 Sound-Hearing-Noise
Prerequisite: SH 200. An analysis of three major factors associated with the noise issue viz, the physics of sound, the biological phenomenon of hearing, and the engineering processes of noise abatement including a review of the OSHA legal standards for noise exposure. 3 credit hours.

SH 400 Occupational Safety and Health Legal Standards
Prerequisite: SH 100. All aspects of the legal constraints applicable to the occupational safety field are examined. Included are OSHA, federal laws not under OSHA jurisdiction, selected state legislation, current and pending product liability laws, environmental protection law and fire safety codes. Consideration will be made for emphasizing particular legal areas as requested. 3 credit hours.

SH 599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Philosophy

PL 201 Philosophical Methods
Logic applied to analyzing and solving practical problems related to the individual and environment, the natural and social sciences, the humanities, and the other areas of philosophy. 3 credit hours.

PL 205 Classical Philosophy
The origins of philosophy in the West, and the continuing influence of classical thought on the development of ideas. 3 credit hours.

PL 206 Modern Philosophy: Descartes to the Present
Philosophical theories that have dominated the modern age. Stress on a central figure of the period. 3 credit hours.

PL 210 Logic
Modern symbolic logic and its applications. 3 credit hours.

PL 213-214 Contemporary Issues in Philosophy
Current philosophical thinking on some particular issue in an area such as natural science, social science, metaphysics, religion, aesthetics, ethics, theory of knowledge or language. Courses can be taken concurrently. 3 credit hours each.

PL 215 Nature of the Self
Investigation of personal identity, human nature and the mind from ancient, modern, Western and Eastern perspectives. 3 credit hours.

PL 222 Ethics in a Changing Society
The major ethical systems in the framework of contemporary society. Ethical norms and their relation to human activities. 3 credit hours.

PL 223 Ethics and Business
How ethics and other values function in their relation to business enterprise. 3 credit hours.

PL 240 Philosophy of Science and Technology
Scientific method, the logic of scientific explanation, the application of science to practical problems, and questions peculiar to the social sciences. 3 credit hours.

PL 250 Philosophy of Religion
An examination of some philosophical notions used in religious discourse, such as meaning, truth, faith, being, God, the holy. 3 credit hours.

PL 254 Philosophy and Human Relationships
Philosophical questions about human relationships and the nature of the person. Applications to such contemporary issues as: feminism and sexism; love and sexual relationships; marriage and the family; relationships between professionals and clients; barriers of background, race or belief. 3 credit hours.

PL 256 Analysis and Criticism of the Arts
The language used to talk about works of art: form, content, expression, value and the ontological status of the art object. Spring semester. 3 credit hours.

PL 260-261 Religious Intellectual Traditions
Philosophical issues within particular religious commitments. 3 credit hours.

PL 320 Mathematical Logic
Prerequisite: PL 210, mathematics major or instructor's consent. The nature of logic and its relationship to mathematics, including implications for computer intelligence. 3 credit hours.

PL 599 Independent Study
Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 1-3 credit hours with a maximum of 12.

Physics

PH 100 Introductory Physics with Laboratory
A one-semester introduction to the science of physics primarily for liberal arts, business and hotel and tourism students. The course provides a broad, non-mathematical understanding of the basic laws of nature, their application to our everyday lives and their impact on our technological society. Laboratory fee. 4 credit hours.

PH 101 Energy—Present and Future
Intended primarily for business and liberal arts students. Explores the nature, role and economic impact of energy in our society. Topics include: the nature and growth of energy consumption, physical limits to energy production and consumption, environmental effects and comparisons of energy alternatives. Special emphasis on the technical, environmental and economic aspects of nuclear power as well as energy sources of the future such as fast breeder reactors, fusion, solar and geothermal power. 3 credit hours.

PH 103-104 General Physics I and II
Primarily for life science majors with no calculus background. Basic concepts of classical physics: fundamental laws of mechanics, heat, electromagnetism, optics, and conservation principles. Introduction to modern physics: relativity and quantum theory, atomic, nuclear and solid-state physics. Application of physical principles to life sciences. 6 credit hours.

PH 105-106 General Physics Laboratory I and II
Should be taken concurrently with PH 103-104. Laboratory Fee. 2 credit hours.

PH 130 Radiation Safety
Intended for students in occupational safety and hygiene, fire science, forensic science and related fields, as well as science and engineering students with interests in this area. Topics include: the nature of radiation and radioactivity, the interaction of radiation with matter, biological effects of radiation, detection and measurement of radiation, shielding considerations, dosimetry, and standards for personal protection. 3 credit hours.

PH 140 Radioactivity Laboratory Technique
Prerequisite: one semester of laboratory science. Provides a practical working knowledge of radioactivity techniques to students in any branch of science engineering or forensics, or to anyone wishing knowledge of the role of nuclear technology today. Experiments may be completed in biology, chemistry, engineering, forensics or physics, according to the interest of the student. Laboratory Fee. 2 credit hours.

PH 150 Mechanics, Heat and Waves with Laboratory
Prerequisite: M 117. Introductory course for physical science and engineering majors. Kinematics, Newton's laws, conservation principles for momentum, energy and angular momentum. Thermal physics. Basic properties of waves, simple harmonic motion, super-position principle, interference phenomena and sound. Laboratory Fee. 4 credit hours.

PH 205 Electromagnetism and Optics with Laboratory
Prerequisites: PH 150, M 118. Basic concepts of electricity and magnetism; Coulomb's law, electric field and potential, Gauss's law, Ohm's law, Kirchoff's rules, capacitance, magnetic field, Ampere's law, Faraday's law of induction, Maxwell's equations, electromagnetic waves. Fundamentals of optics; light, laws of reflection and refraction, interference and diffraction phenomena, polarization, gratings, lenses and optical instruments. Laboratory Fee. 4 credit hours.

PH 211 Modern Physics
Prerequisite: PH 205. Modern physics fundamentals. Twentieth-century developments in the theory of relativity and the quantum theory. Atomic, nuclear, solid-state and elementary particle physics. 3 credit hours.

PH 270 Thermal Physics
Prerequisite: PH 103 or PH 150. Basic thermodynamics and its applications. Major emphasis on the efficiency of energy conversion and utilization. Topics include: the laws of thermodynamics, entropy, efficiency of heat engines, solar energy, the energy balance of the earth, energy systems of the future, economics of energy use. 3 credit hours.

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PH 280 Lasers
Prerequisite: PH 205. Laser theory, holography, construction and application to latest engineering and scientific uses. 3 credit hours.

PH 285 Modern Optics
Prerequisite: PH 205. Introduction to optical theories. Topics on the latest developments in optics. Application to life sciences and engineering. 3 credit hours.

PH 301 Analytical Mechanics
Prerequisites: M 150, M 204, or instructor's consent. Intermediate analytical mechanics. Statics and dynamics of particles and rigid bodies. Emphasis on the theory of motion under central forces and on the use of the generalized coordinates; introduction to an elementary Lagranian and Hamiltonian formalism; small vibrations. 3 credit hours.

PH 351 Intermediate Electricity and Magnetism
Prerequisites: PH 205, M 204. Electric field and potential using vector field formalism. Boundary conditions. Poisson's and Laplace's equations. Electromagnetic fields in cavities and weaveguides. Electromagnetic waves. 3 credit hours.

PH 373 Advanced Laboratory
Prerequisite: PH 211. Selected experiments in atomic, nuclear, and solid state physics. Laboratory Fee. 2 credit hours.

PH 400 Statistical Mechanics
Prerequisite: instructor's consent. An introductory course in classical and quantum statistical mechanics. The canonical ensemble: Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics and their applications; statistical interpretation of thermodynamics; transport processes. 3 credit hours.

PH 401 Atomic Physics
Prerequisite: PH 211. Structure and interactions of atomic systems including Schrodinger's equation, atomic bonding, scattering and mean free path, radiative transitions and laser theory. 3 credit hours.

PH 404 Senior Project
Open to senior physics majors. Individual projects in experimental or theoretical physics to be carried out under direct supervision of a faculty advisor. 1-6 credit hours.

PH 406 Solid-State Physics
Prerequisite: PH 211. Introduction to the physics of solids with emphasis on crystal structure, lattice vibrations, band theory, semi-conductor, magnetism and superconductivity. Applications to semiconductor devices and metallurgy. 3 credit hours.

PH 415 Nuclear Physics
Prerequisite: PH 211 or instructor's consent. Elementary nuclear physics. Nuclear structure, natural radioactivity, induced radioactivity nuclear forces and reactions, fission and fusion, reactors and topics of special interest. 3 credit hours.

PH 451 Elementary Quantum Mechanics
Prerequisite: PH 211 or instructor's consent. An elementary treatment of nonrelativistic quantum mechanics. Schrodinger's equation with its applications to atomic and nuclear structure; collision theory; radiation; introductory perturbation theory. 3 credit hours.

PH 470 Theory of Relativity
Prerequisite: PH 211 or instructor's consent. Introduction to Einstein's theory of relativity. Special theory of relativity; Lorentz transformations, relativistic mechanics and electromagnetism. General theory of relativity; equivalence principle, Einstein's three tests, graviton, black hole and cosmology. 3 credit hours.

PH 599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Political Science

†Institute of Law and Public Affairs courses

PS 101 Introduction to Politics
A basic course introducing students to the discipline of political science and its subjects: political theory, law, national government, international relations, comparative government and political economy. 3 credit hours.

PS 121 American Government and Politics
A basic study of the American political system. Constitutional foundations, the political culture, Congress, the Presidency, the judicial system, political parties, interest groups, news media, individual liberties, federalism, the policy-making process. 3 credit hours.

PS 122 State and Local Government and Politics
Problems of cities, revenue sharing, community power structures, welfare, public safety, the state political party, big-city political machines, interest groups, state legislatures, the governor, the mayor, courts and judicial reform. 3 credit hours.

PS 201-202 Women and the Political Process
The impact of women on the economic, social and political process; problems of integration and equalitarianism. 3 credit hours.

PS 203 American Political Thought
Pre-revolutionary and revolutionary political thought; classical conservatism, liberalism, Jacksonian democracy, civil disobedience, social Darwinism, progressive individualism and pluralism. 3 credit hours.

PS 205 The Politics of the Black Movement in America
The political development of the Black movement in America emphasizing ideological, legal and cultural perspectives. 3 credit hours.

PS 216 Urban Government and Politics
A study of the urban political process. Structures and organizations of urban governments, decision making, public policy, the "urban crisis," crime and law enforcement, party politics and elections, taxation and spending patterns, environmental problems, management of urban development. 3 credit hours.

PS 222 United States Foreign Policy
An examination of the global foreign policy of the United States and of the process of policy-making involving governmental and non-governmental actors. A review of the political, economic, military and cultural tracks of policy. 3 credit hours.

†PS 224 Public Attitudes and Public Policy
A study of the sources of mass political attitudes and behavior and their effect upon public policy. The course will examine the techniques for influencing opinion including propaganda and mass media communications. 3 credit hours.

†PS 226 Family Law
A study of legal relations between husband and wife including marriage, annulment, divorce, alimony, separation, adoption, custody arrangements and basic procedures of family law litigation. 3 credit hours.

†PS 228 Public Interest Groups
This course will examine American group institutions of the American political culture. Emphasis will be on the legal nature, purpose and function of each operational organization in the political process. 3 credit hours.

†PS 229 Legal Communications
This course seeks to familiarize students with the kinds of legal documents and written instruments employed by participants in the legal process. Students will learn to recognize and understand the purpose of writs, complaints, briefs, memoranda, contracts, wills and motions. 3 credit hours.

†PS 230 Anglo-American Jurisprudence
This course will survey ideas about the nature of law. Among the legal philosophers examined will be Plato, Aristotle, St. Thomas Aquinas, John Austin, William Blackstone, Benjamin Cardozo, L.A. Hart and Oliver Wendell Holmes. The contribution to legal theory made by various schools of jurisprudence (e.g., positivism, legal realism) will also be examined. 3 credit hours.

†PS 231 Judicial Behavior
Examination of the American court system as a political policy-making body. Topics considered include: the structure of the judicial system, the influence of sociological and psychological factors on judicial behavior and the nature and impact of the judicial decision-making process. 3 credit hours.

PS 232 The Politics of the First Amendment
Prerequisite: PS 121. Examination of the political implications of the First Amendment freedoms of speech, press and religions; Supreme Court adaptation of the First Amendment to changing political social conditions. 3 credit hours.

†PS 238 Legal Procedure I
This course is designed to provide a practical knowledge of civil procedure for the pre-law and paralegal student. 3 credit hours.

†PS 239 Legal Procedure II
An introduction to litigation techniques and procedures, including skills needed to negotiate for civil and criminal actions. 3 credit hours.

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†PS 240 Legal Bibliography and Resources
An introduction to legal bibliographic materials. Students will learn how to use various kinds of law books in solving research problems incident to advising clients and trying and appealing cases. The function of court reports, statutes, codes, digests, citators, loose-leaf services and treatises will be discussed. 3 credit hours.

PS 241 International Relations
Forces and structures operating in the modern nation state system; the foreign policy process; decision-making process; the impact of decolonization on traditional interstate behavior; economic and political developments since World War II. 3 credit hours.

PS 243 International Law and Organization
Prerequisite: PS 241. Traditional and modern approach to international law and organization; major emphasis on the contribution of law and organization to the establishment of a world of law and world peace. The League of Nations system and the United Nations system are analyzed. 3 credit hours.

†PS 244 Estates and Trusts
An examination of the legal principles and techniques of effective estate planning and administration. Topics covered include inheritance statutes, preparation and execution of wills, and record keeping practices. 3 credit hours.

PS 261 Modern Political Analysis
Introduction to the new approach of political analysis; personality and politics; political socialization; role and group theory; decision making; systems analysis and political violence. 3 credit hours.

PS 264 Political Development of the Third World
Political climate of new states; problems of political unity and national integration, regionalism, nationalism, imperialism; political structures, problems of leadership and decision making. 3 credit hours.

PS 281 Comparative Political Systems: Asia
Traditional and modern political and social structures of China, Japan and Korea and other Asian states including the function of the political system within each country. 3 credit hours.

PS 282 Comparative Political Systems: Europe
Political characteristics of modern European states. Emphasis on political, social and economic institutions, structures, the impact of modern European developments on integration. France, Germany, United Kingdom, USSR, Yugoslavia, Czechoslovakia, Sweden and Switzerland. 3 credit hours.

PS 283 Comparative Political Systems: Latin America
Political modernization, development in Latin America, political institutions, national identity, leadership, integration, political socialization and political ideologies. 3 credit hours.

PS 284 Comparative Political Systems: Africa
Colonial background; constitutional framework. Political institutions and governmental structures of African states. 3 credit hours.

PS 285 Comparative Political Systems: Middle East
Colonial background; legal framework of nationhood; political, social and economic structures of development of selected countries are examined. 3 credit hours.

PS 304 Political Parties
Prerequisite: PS 121. Voting and electoral behavior; nominations and campaign strategy; pressure groups; political party structure and functions of the party system in the American political community. 3 credit hours.

PS 308 Legislative Process
Prerequisite: PS 121. Legislative process in the American political system; legislative functions; selection and recruitment of candidates; legislative leadership, the committee system; lobbyists, decision making; legislative norms, folkways and legislative-executive relations. 3 credit hours.

PS 309 The American Presidency
The role of the President as commander-in-chief, legislative leader, party leader, administrator, manager of the economy, director of foreign policy and advocate of social justice; nature of presidential decision making, authority, power, influence and personality. 3 credit hours.

†PS 315 Political Bureaucracy
The nature and function of governmental bureaucratic organizations with particular emphasis on the decision-making process. Attention paid to the sources and consequences of increasing bureaucracy on the ability to govern. 3 credit hours.

†PS 326 Real Estate Law
A variety of legal skills in real estate law. Special attention given to title, operations, mortgage, deeds, leases, property taxes, closing procedures and documents. 3 credit hours.

†PS 328 Legal Management and Administrative Skills
An examination of the procedures and systems necessary to run a law office efficiently. Students will learn such administrative skills as how to interview clients, conduct legal correspondence and maintain legal records. Proven management techniques for keeping track of filing dates and fees, court dockets and calendars are also examined. 3 credit hours.

†PS 329 Legal Library Skills
A systematic appraisal of the duties, responsibilities and skills required of paraprofessionals employed in law libraries. 3 credit hours.

†PS 330 Legal Investigation
Examines skills needed to conduct investigations that are a routine part of the practice of law such as principles of fact-gathering in a wide range of cases (e.g., criminal, divorce, custody, housing). 3 credit hours.

PS 331 Theory and the Supreme Court
An examination of the ways in which the Supreme Court exercises judicial review with particular emphasis on the various theories of review as they have evolved from John Marshall to the present. 3 credit hours.

PS 332 Constitutional Law
Prerequisite: PS 121. Principles and concepts of the United States Constitution as revealed in leading decisions of the Supreme Court and the process of judicial review. 3 credit hours.

†PS 340 Campaign Management: Procedures and Operations
A study of the procedure and operation of the contemporary political campaign including issue development, voter registration, canvassing, media usage, fundraising, scheduling, campaign data, etc. 3 credit hours.

†PS 341 Campaign Management: Structure and Organization
This course will explore the structure, organization and management of the campaign operation and the handling, roles and tasks of the campaign personnel. 3 credit hours.

†PS 344 Campaign Management: Survey Research, Polling and Computers
A study of the uses and the interpretation of survey research, polling projects, computer techniques, and their application to political campaigns. 3 credit hours.

†PS 346 Campaign Management: Financing and Election Laws
This course will explore the methods used to finance a political campaign; the nature of campaign costs; the role of political action committees; the effects of campaign finance laws; and the technical aspects and political implications of elections laws at the federal, state and local levels. 3 credit hours.

PS 350 Public Policy: U.S. National Security
This course covers the development and operation of U.S. military and national security policy from George Washington to the present with the major emphasis on the twentieth century and the post-World War II period. 3 credit hours.

PS 390 Political Modernization (Honors)
Comparative analysis of political change and development. Political transition, political integration and nation building; institutional developments; political parties; military elites; youth intellectuals; the bureaucracy; economic development; and political culture. 3 credit hours.

†PS 406 Public Affairs Research
Students prepare recommendations on policy problems presented to the institute by governmental bodies on the municipal, state and federal levels or by private groups. 3 credit hours.

†PS 415 Internship in Legal and Public Affairs
Students will have the opportunity to work as paraprofessionals in law offices, government agencies, and party organizations, and to share their experiences with other interns in legal and public affairs. Permission of the instructor is required. 3 credit hours.

†PS 430 Computers and the Law
An analysis of the ways in which the advent of the computer has affected law and the legal profession. Students will explore methods of using computers for legal research, the effects of computers on criminology and the administration of justice, the impact of mass data banks on the right to privacy and the freedom of choice. 3 credit hours.

†PS 440 Legal Research
Prerequisite: PS 240. The purpose of this course is to give the student practical experience in researching and writing on realistic legal problems. Specific written assignments will require students to make use of all the library tools. Student will learn how to prepare and analyze legal memoranda and briefs. 3 credit hours.

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†PS 450 Campaign Management: Internship
This course will allow the student to gain actual work experience in campaign management. 3 credit hours.

PS 461 Political Theory: Ancient and Medieval
Foundations of Western political thought from the Greek, Roman and medieval experiences as it applies to the total discipline of political science. 3 credit hours.

PS 462 Political Theory: Modern and Contemporary
A continuation of the study of political thought from the High Middle Ages to the contemporary theorists. 3 credit hours.

PS 494-498 Studies in Political Science
Special studies on a variety of current problems and specialized areas in the field not available on the regular curriculum. 3 credit hours per course.

PS 499-500 Senior Seminar in Political Science
Prerequisite: permission of the department chairman. Construction and preparation of an individual research project in political science and the presentation of that project in oral form within the seminar and in written form as the seminar thesis. Required of all political science majors. 3 credit hours.

PS 599 Independent Study
Directed research on special topics to be decided upon in consultation with the chairman of the department. 3 credit hours.

Psychology

P 111 Introduction to Psychology
Understanding human behavior. Motivation, emotion, learning, personality development, intelligence, as they relate to normal and deviant behavior. Applying psychological knowledge to everyday personal and societal problems. 3 credit hours.

P 211 Psychology of Effective Living
Prerequisite: P 111. Psychological principles and research as they apply to the problems of adjustment and competence. Analysis of problems and patterns involved in effective psychosocial functioning. 3 credit hours. (This course is for personal enrichment only and cannot be used to satisfy requirements for the psychology major or minor. Offered only in the fall semester of even-numbered years.)

P 212 Business and Industrial Psychology
Prerequisite: P 111. Psychological principles and research as they apply to the problems of working with people in organizations. Analysis of problems and decision in the use of human resources, including selection and placement, criterion measurement, job design, motivation. 3 credit hours.

P 216 Psychology of Human Development
Prerequisite: P 111. Human development over the life cycle—conception through death; the changing societal and institutional framework; key concepts and theoretical approaches; understanding development through biography; child rearing and socialization here and abroad. 3 credit hours.

P 301 Statistics for Behavioral Sciences
Prerequisite: M 127. Concepts and assumptions underlying statistical methods essential to design and interpretation of research on human subjects. Fundamental descriptive and inferential methods. Laboratory fee. 4 credit hours.

P 305 Experimental Methods in Psychology
Prerequisite: P 301. Methods of designing and analyzing psychological experiments. The scientific method as applied to psychology. Consideration of research techniques, experimental variables, design problems, data analysis. 3 credit hours.

P 306 Psychology Laboratory
Prerequisite: P 305. Group and individual experiments to be carried out by students. Research techniques for studying learning, motivation, concept formation. Data analysis and report writing. Offered only in spring semester of odd-numbered years. 3 credit hours.

P 315 Human and Animal Learning
Prerequisite: P 111. Different types of human and animal learning. Learning as an adaptive mechanism. Psychological principles underlying learning. Practical applications of learning principles. 3 credit hours.

P 321 Social Psychology
Prerequisites: P 111, SO 113. The interdependence of social organizations and behavior. The interrelationships between role systems and personality; attitude analysis, development and modification; group interaction analysis; social conformity; social class and human behavior. Offered only in the spring semester of odd-numbered years. 3 credit hours. (Same as SO 320).

P 330 Introduction to Community Psychology
Prerequisite: P 111. Key concepts of community psychology/community mental health. Community problems, needs and resources. The helping relationship. Intervention techniques. Programming services. Understanding behavioral differences. Careers in community psychology. 3 credit hours.

P 331-332 Undergraduate Practicum in Community/Clinical Psychology
Corequisites: P 330 or permission of the instructor. Supervised field experience in community psychology/mental health settings. Exploration of service delivery. Development of basic repertoire of helping skills. Behavioral log. Project reporting. Understanding helping roles at individual, small group and institutional levels. 1-6 credit hours with a maximum of 3 credit hours per semester.

P 336 Abnormal Psychology
Prerequisite: P 111. Psychological and organic factors in personality disorganization and deviant behavior. Psychodynamics and classifications of abnormal behavior. Disorders of childhood, adolescence and old age. Evaluation of therapeutic methods. 3 credit hours.

P 341 Psychological Theory
Prerequisite: P 111. Contemporary theory in psychology. Emphasis on those theories which have most influenced thinking and research in sensation, perception, learning, motivation, personality. Offered only in fall semester of odd-numbered years. 3 credit hours.

P 350 Human Assessment
Prerequisite: P 301. Basic principles of measurement, applied to problems of the construction, administration and interpretation of standardized tests in psychological, educational and industrial settings. Offered only in fall semester of odd-numbered years. 3 credit hours.

P 351 Behavior Therapies
Prerequisite: P 111. Principles of therapeutic behavior management. Alteration of maladaptive behavior patterns in institutional, neighborhood, home, educational and social settings by operant and respondent reinforcement techniques. Habit management in oneself and one's children. Offered only in the spring semester of even-numbered years. 3 credit hours.

P 355 Organizational Behavior
Prerequisite: P 111. Theoretical underpinning for the major approaches to understanding motivation and leadership behavior in organizations. Comparative evaluation of incentives such as salary and career growth potential as they relate to sustained motivation. The processes involved in effective leadership. Integration of motivation and leadership concepts as they affect the quality of working life. Offered only in the fall semester of even-numbered years. 3 credit hours.

P 356 Psychology of Personnel Training and Development
Prerequisite: P 111. Approaches to the identification of training needs in a variety of organizational settings. The effectiveness of the major training methodologies and techniques for assessing training program outcomes. Individual differences in response to various learning strategies. Offered only in the spring semester of odd-numbered years. 3 credit hours.

P 361 Physiological Psychology
Prerequisites: P 111; BI 121 and BI 122. Endocrinological, neural, sensory and response mechanisms involved in learning, motivation, adjustment, emotion and sensation. Offered only in spring semester of even-numbered years. 3 credit hours.

P 370 Psychology of Personality
Prerequisites: P 111, junior class standing. Theory and method in the understanding of normal and deviant aspects of personality; theories of Freud, Jung, Rogers, neo-Freudians and others. 3 credit hours.

P 375 Foundations of Clinical/Counseling Psychology
Prerequisite: P 336. Foundations of clinical/counseling psychology will review the humanistic, psychoanalytic, and behaviorist views on the emergence and treatment of psychopathology. The fit between theory and technique will be explored. 3 credit hours.

P 480-484 Selected Topics in Psychology
3 credit hours.

P 599 Independent Study
Prerequisites: consent of faculty member and chairman of department. Opportunity for the student under the direction of a faculty member to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

COURSES

Public Administration

PA 101 Introduction to Public Administration
The nature of and problems involved in the administration of public services at the federal, state, regional and local levels. 3 credit hours.

PA 302 Public Administration Systems and Procedures
Stressed are the major staff management functions in government and in non-profit agencies: planning, budgeting, scheduling and work analysis. 3 credit hours.

PA 305 Institutional Budgeting and Planning
Budgeting as an institutional planning tool, as a cost control device and as a program analysis mechanism is stressed. Attention is given to the salary expense budget, the revenue budget, the capital budget and the cash budget. 3 credit hours.

PA 307 Urban and Regional Management
Methods and analysis of decision-making related to urban and regional problems. Topics include housing, land use, economic development, transportation, pollution, conservation and urban renewal. 3 credit hours.

PA 308 Health Care Delivery Systems
An examination of the health care delivery systems in the U.S., including contemporary, economic, organizational, financing, manpower, cost and national health insurance issues. 3 credit hours.

PA 315 Metropolitan Planning
Analysis of demographic data, public expenditures and land-use-control surveys. Land-use controls, planned unit development, the development of new communities, and urban growth policy are discussed. State and federal policies affecting urban growth are stressed. 3 credit hours.

PA 316 Urban Housing
Encompassed are the subjects of housing management, planning and finance and policy. Specific topics such as the provision of low-income housing, the use of mortgage insurance, interest subsidies, site planning, rent controls, code enforcement, mortgage markets and the rise in housing abandonment are stressed. 3 credit hours.

PA 320 Municipal Finance and Budgeting
This course involves the analysis of fiscal policy at the municipal level. The financing and budgeting of services and improvements by local government. 3 credit hours.

PA 390 Administrative Law
The basic legal arrangement of administrative organization; rule governing the use of administrative powers; legal procedures for enforcement of executive responsibilities. 3 credit hours.

PA 404 Public Policy Analysis
Using the public perspective, the course examines the nature of the public policy process from policy formulation through policy termination. Major emphasis is given to the techniques commonly used in analyzing public policy including cost/benefit analysis and comparison of expected and actual outcomes. Provides an opportunity to gain "hands on" experience in the analysis and evaluation of public policy.

PA 405 Public Personnel Practices
Study of the civil service systems of the federal, state and local governments including a systematic review of the methods of recruitment, evaluation, promotion, discipline, control and removal. 3 credit hours.

PA 408 Collective Bargaining in the Public Sector
Analysis of collective bargaining in the public sector, with emphasis on legislation pertaining to government employees. 3 credit hours.

PA 490 Public Health Administration
An examination of public health activities, including public health organization, environmental health, disease control, use of information systems and social services. 3 credit hours.

PA 491 Public Health and Environmental Law
The role of the law in public health and environmental protection. Emphasized are the legal tools and administrative techniques used in the enforcement and administration of public health and environmental control policy. 3 credit hours.

PA 501 Public Administration Internship
Prerequisite: consent of the coordinator. This program provides monitorial field experience with public and not-for-profit agencies. Minimum of 3 credit hours.

PA 512 Seminar in Public Administration
Selected topics related to public administration are chosen. 3 credit hours.

PA 599 Independent Study
Independent study on a project of interest to the student under the direction of a faculty member approved by the department chairman. 3 credit hours.

Quantitative Analysis

QA 118 Business Mathematics
Prerequisite: QA qualifying exam. An introduction to mathematical programming and probability and statistics. Topics include solutions to linear equations, breakeven analysis, graphical solutions to linear programming problems, mathematical modeling, measures of central tendency and variability and basic probability concepts. The course presents introductory material to both QA 128 and QA 216. 3 credit hours.

QA 128 Quantitative Techniques in Management
Prerequisite: QA 118. An introduction to quantitative techniques in management. Topics include linear programming, assignment problems, transportation algorithms, network and inventory models, and decision theory. 3 credit hours.

QA 216 Probability and Statistics
Prerequisite: QA 128 or equivalent. A course in elementary probability and statistical concepts with emphasis on data analysis and presentation, frequency distributions, probability theory, probability distributions, sampling distributions, statistical inference, hypothesis testing, the T, chi-square and F distributions. 3 credit hours.

QA 250 Quantitative Techniques II
Prerequisite: QA 216. A course stressing advanced applications of quantitative techniques to the solution of business problems. Topics include: classical optimization techniques, non-linear programming, topics in mathematical programming, and graph theory. 3 credit hours.

QA 314 Field Research in Business and Government
Prerequisite: QA 128. Methods of determining customer reactions to goods and services offered in the marketplace and to business establishments. Topics include: the nature and role of sampling; characteristics of sampling procedures; design of sample surveys; development of survey designs; procedures used in interviewing, tabulation, data analysis and presentation of research results; and the appraisal of performance to be expected from survey designs. 3 credit hours.

QA 333 Advanced Statistics
Prerequisite: QA 216. A course stressing advanced statistical concepts and statistical methods relating to business. Topics include: regression and correlation, multiple regression, and analysis of variance (ANOVA). Computer Use Fee. 3 credit hours.

Russian

RU 101-102 Elementary Russian
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

RU 201-202 Intermediate Russian
Prerequisites: RU 101-102 or the equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to read in their own areas of interest. 6 credit hours.

Science and Environmental Studies

Courses that are marked with an asterisk (*) are usually scheduled every other academic year. Courses marked with a dagger (†) may be offered at the discretion of the department.

***SC 111-112 Physical Science**
The meaning of scientific concepts and terms and their relation to other areas of learning and to daily living. Development and unity of physical science as a field of knowledge. Includes astronomy, physics, chemistry and geology. 6 credit hours.

†SC 113 Physical Science Laboratory
Prerequisite: SC 111. To be taken with SC 112 or after. Direct experience with physical experimentation. Training in design, conduct, analysis and reporting of physical experiments. Emphasis on historically important theories and experiments. Laboratory Fee. 1 credit hour.

COURSES

***SC 126 Astronomy**
An introduction to present concepts concerning the nature and evolution of planets, stars, galaxies and other components of the universe. The experimental and observational bases for these concepts are examined. 3 credit hours.

***SC 135 Earth Science**
A dynamic systems approach to phenomena of geology, oceanography and meteorology. Emphasis on interrelations of factors and processes and on importance of subject matter to human affairs. Suitable for non-science as well as for science majors. 3 credit hours.

***SC 146 Fundamentals of Oceanography**
Description of major aspects of geological, chemical, physical and biological oceanography. Emphasis on human use and disuse of oceans. Suitable for non-science as well as science majors. 3 credit hours.

***SC 309 Scientific Photographic Documentation**
Prerequisites: BI 121 or BI 253 or consent of the instructor. Theory and practice of photographic image formation and recording. Photography of biological, ecological and graphic subjects of all sizes using black and white, infrared, color negative and color positive, and polaroid materials. Laboratory Fee. 4 credit hours.

***SC 507 Characterization and Treatment of Wastes with Laboratory**
Prerequisites: SC 135, BI 361 or CH 201-202, CH 211; M 117- 118. The types of waste materials generated by agriculture, industry, transportation, municipalities and individuals are discussed and the methods of detection and identification and treatment of each type of waste materials are covered. Laboratory Fee. 4 credit hours.

***SC 513 Environmental Pollutants with Laboratory**
Prerequisites: CH 116 and BI 330, or permission of instructor. Physical, chemical and biological properties of the major environmental pollutants. New and older methods of sampling, identification and measurement are presented. Laboratory Fee. 4 credit hours.

Shipbuilding and Marine Technology

SB 101 Introduction to Shipbuilding
Prerequisites: M 109 and ME 101 or equivalent. This course introduces the basic terms, concepts, and methods used in describing and designing large ships. Coefficients of form are defined, structural members are described, elemental strength calculations are made for joints, hull bending stresses, critical launching loads etc. and basic approaches for watertight subdivision are explored. 3 credit hours.

Shipyard Management

SM 410 World Shipbuilding
Analysis of the world merchant fleets and the U.S. merchant fleet. Discussion and analysis of comparative maritime aids. The following countries will be reviewed: Japan, United Kingdom, Norway, Sweden, West Germany, France and the United States. A review also will be made of the Communist countries to the extent that information is available. World shipbuilding competitive factors will be analyzed in this course. 3 credit hours.

SB 102 Basic Ship Stability
Prerequisite: SB 101. Presents fundamental concepts and methods of calculating the key stability parameters for a displacement ship. Topics include: the geometry and effect of the center of floatation, metacentric height, and righting arm curves; causes of impaired stability from free surface, pocketing, surface permeability, etc.; and an introduction to the dynamic stability characteristics of heeling energy, stability-curve criteria, rudder and maneuvering hydrodynamics etc. 3 credit hours.

SB 201 Elements of Ship Propulsion
Prerequisite: SB 101. This course introduces the theory and calculations used in establishing a ship's speed-power curve and the related propulsion train features. The various propulsive efficiencies are defined and used in solving typical ship resistance problems. Standard prime movers are described as well as methods for selecting a specific power plant. A short unit on propeller theory and selection is also included. 3 credit hours.

SM 412 Shipyard Management: Finance
A study of determinants in forecasting shipyard investment demand. Discussion of comparative efficiency and marine facilities. Private sources of financing and federal subsidies. Cost and benefits from shipbuilding subsidies. Discussion of marine aids available in American shipbuilding. 3 credit hours.

SM 414 Shipyard Management: Planning and Control
This course covers planning and control in a commercial shipyard, required by all levels of management to produce quality ships on time. Special emphasis is placed on planning for the use of resources by middle-level managers and supervisors. Stress is placed on effective management of time, facilities, materials and manpower. 3 credit hours.

SM 415 Shipyard Management: Marketing
A study of methods to employ when defining future markets that will determine new shipyard production. A study of the relationship between investment, relative productivity and share of the world shipbuilding market. Determination of market share as affected by technical efficiency and cost efficiencies. Emphasis on problems in the dry and liquid bulk sectors of the industry. 3 credit hours.

Sociology

SO 113 Sociology
The role of culture in society, the person and personality; groups and group behavior; institutions; social interaction and social change. 3 credit hours.

SO 114 Contemporary Social Problems
Prerequisite: SO 113 or consent of instructor. The major problems which confront the present social order, and the methods now in practice or being considered for dealing with these problems. 3 credit hours.

SO 115 Women in Society
An overview of woman's role in the social system. Discussion includes myths and realities of sex differences. Areas covered include analysis of the relationship of women to the economy, the arts, sciences and how these affect the behavior of women in the contemporary world. 3 credit hours.

SO 214 Deviance
Prerequisite: SO 113 or consent of the instructor. (Offered in the spring semester only.) Centered around deviance as a social product. The problematic nature of the stigmatization process is explored in such areas as alcoholism, crime, mental illness and sexual behavior. 3 credit hours.

SO 218 The Community
Prerequisite: SO 113 or consent of instructor. The community and its provisions for health, education, recreation, safety and welfare. Theoretical concepts of community, plus ethnographic studies of small-scale human communities, introduce students to fundamental concepts of community. 3 credit hours.

SO 220 Physical Anthropology and Archaeology
An introduction to the study of human evolution and of present physical variations among mankind. Includes geologic time, primate evolution and early man and his culture. 3 credit hours.

SO 221 Cultural Anthropology
A systematic study of the culture of preliterate and modern societies and of cultural change. Includes analyses of religion, economics, language, social and political organization and urbanization. 3 credit hours.

SO 231 Juvenile Delinquency
Prerequisites: SO 113, P 111. This course is offered as CJ 221 in university schedules. An analysis of delinquent behavior in American society; examination of the theories and social correlates of delinquency, and the socio-legal processes and apparatus for dealing with juvenile delinquency. 3 credit hours. (Same as CH 221.)

SO 250 Research Methods
Prerequisite: sophomore status. The student develops the concepts necessary for selection and formulation of research problems in social science, research design and techniques, analysis and interpretation of research data. 3 credit hours.

SO 310 Primary Group Interaction
Prerequisite: SO 113. Exploration of communication in group process. Building a group and analyzing group structure and interaction; the ways people communicate emotionally and intellectually. 3 credit hours.

SO 311 Criminology
Prerequisites: P 111, SO 113. An introduction to the principles and concepts of criminology; analysis of the social context of criminal behavior, including a review of criminological theory, the nature and distribution of crime, the sociology of criminal law and the societal reactions to crime and criminals. 3 credit hours. (Same as CJ 311.)

COURSES

SO 312 Marriage and the Family
Prerequisite: SO 113 or consent of instructor. The formation, functioning and dissolution of relationships in contemporary American society is examined from an applied sociology perspective. 3 credit hours.

SO 313 Sociology of Sport
Prerequisite: SO 113 or consent of the instructor. A study of the relationships among sport, culture and society. Emphasis is on both amateur and professional sports and their impact on the larger social order. Course will examine sport from a comparative and historical perspective, but will also focus on problems confronting the world of sport in contemporary American society. 3 credit hours.

SO 315 Social Change
Prerequisite: SO 113 or consent of instructor. Sources, patterns and processes of social change with examination of classical and modern theories of major trends and developments as well as studies of perspectives on microlevels of change in modern society. 3 credit hours.

SO 318 Political Sociology
Prerequisite: SO 113 or consent of instructor. Concepts, theories and basic issues in the sociological analysis of political systems. Social factors in political attitudes and behavior with emphasis on understanding the functional and dysfunctional aspects of socio-political coordination and conflict. 3 credit hours.

SO 320 Social Psychology
Prerequisites: P 111, SO 113. This course is offered as P 321 in university schedules. The interdependence of social organizations and behavior. The interrelationships between role systems and personality; attitude analysis, development and modification; group interaction analysis; social conformity; social class and human behavior. 3 credit hours. (Same as P 321.)

SO 321 Social Inequality
Prerequisite: SO 113 or consent of instructor. Organization of social class: status, power and process of social mobility in contemporary society. Social stratification, its functions and dysfunctions, as it relates to the distribution of opportunity, privilege and power in society. 3 credit hours.

SO 322 Sociology of Education
Prerequisite: SO 113 or consent of instructor. Effects of education on American society; the organizational structure; major emphasis on the interactive roles of students, particular concern with the relationship between education and socio-economic status and problems of organizational change in the American school system. 3 credit hours.

SO 331 Population and Ecology
Prerequisite: SO 113 or permission of the instructor. Societal implications of population changes and trends; impact of man as a social animal upon natural resources, cultural values and social structures; cultural values and social structures, their influence on environmental ethics. 3 credit hours.

SO 333 Sociology of Aging
Prerequisite: SO 113 or consent of the instructor. The sociological phenomenon connected with aging in America. Discussion of the connections between personal troubles and social issues encountered by members of this society as they age. An examination of age stratification and the resultant problems of ageism, prejudice and discrimination. Systematic review of major theoretical framework and research studies; emphasis will be placed on the application of sociological theory and research in the field of aging. 3 credit hours.

SO 337 Human Sexuality
Prerequisite: SO 113 or consent of the instructor. A scientific study of human sexual behavioral patterns, social class attitudes and cultural myths. Topics include reproductive systems, sexual attitudes and behavioral patterns, abortion and sexual laws and variations in sexual functioning. 3 credit hours.

SO 340 Medical Sociology
Prerequisite: SO 113 or consent of the instructor. An analysis of a major social institution, the health care field. Emphasis placed on socio-cultural aspects of the field; general overview of the organization and delivery of health care services and the current problems and issues. 3 credit hours.

SO 350 Social Survey Research
Prerequisite: P 301 or M 228. Introduction to the logic of social science by a survey research project. Emphasis on the use of computer software in analyzing large date sets. Topics include theory development, survey design, sampling, methods of data collection and statistical analysis of social science date. This is part of the computer literacy component of the University Core Curriculum. 3 credit hours.

SO 390 Sociology of Organizations
Prerequisite: SO 113 or consent of the instructor. Classic sociological theories of organization with emphasis on the concepts of bureaucracy, scientific management, human relations and decision-making theory. The relevance of these ideas to concrete organization contexts, e.g., civil service, business, social movements and political parties, charitable institutions, hospitals. 3 credit hours.

SO 400 Minority Group Relations
Prerequisite: SO 113 or consent of the instructor. An interdisciplinary analysis of minority groups with particular attention paid to those regional, religious and racial factors that influence interraction. Designed to promote an understanding of subgroup culture. 3 credit hours.

SO 410 Urban Sociology
Prerequisite: SO 113 or consent of the instructor. The challenges of the cities. Residential patterns together with the physical development of cities and redevelopment plans. An examination of groups of people and their environment and the relationship between the two. 3 credit hours.

SO 413 Social Theory
Prerequisite: nine semester hours in sociology. An analysis of the development of sociology in the nineteenth and twentieth centuries with particular emphasis on the theories of Comte, Durkheim, Simmel, Weber, Marx, deTocqueville and others. 3 credit hours.

SO 414 Sociology of Occupations and Professions
Prerequisite: SO 113 or consent of the instructor. A sociological analysis of the division of labor, occupational groupings, career patterns and professional associations in modern society. 3 credit hours.

SO 418 Public Opinion and Social Pressure
Prerequisites: SO 113, P 111. An intensive analysis of the nature and development of public opinion with particular consideration of the roles, both actual and potential, of communication and influence. 3 credit hours.

SO 440 Undergraduate Seminar
Prerequisite: consent of the department chairman. A detailed examination of selected topics in the field of sociology and a critical analysis of pertinent theories with emphasis on modern social thought. 3 credit hours.

SO 441 Sociology of Death and Suicide
Prerequisite: SO 113 or consent of the instructor. A confrontation with individual mortality and an academic investigation of such phenomena as funerals, terminal illness and crisis intervention, among many others. 3 credit hours.

SO 450 Research Seminar
Prerequisite: P 301 or M 228. The student develops and carries out an original research project in social science, reporting this procedure to the class. 3 credit hours.

SO 451-455 Special Topics: Sociology, Social Services, Anthropology
Prerequisite: SO 113, SO 221, or permission of instructor. Special topics in sociology, anthropology, or social welfare on a variety of current problems and specialized areas not available in the regular curriculum. 3 credit hours.

SO 501-502 Practicum
Prerequisite: consent of the department chairman. Field experience in sociology or anthropology. Seminars in conjunction with this experience before off-campus field work is undertaken. Contact during the field work experience and guidance by the mentor provide an opportunity for understanding group and individual dynamics and their repercussions. Follow-up seminars and a paper are required. 1-6 credit hours.

SO 599 Independent Study
Prerequisites: consent of instructor and chairman of department. Opportunity for the student, under the direction of a faculty member, to explore an area of personal interest. This course must be initiated by the student. 1-3 credit hours per semester with a maximum of 12.

Social Services

SW 220 Introduction to Social Services
Introduction to Social Services explores two basic questions from a historical perspective: Why are people poor, and, how societies have responded to the conditions of poverty. In examining these questions, the focus is on how the different economic, political, psychological, and sociological arrangements of society, and its social institutions, create conditions which stimulate and necessitate differing social welfare responses. 3 credit hours.

COURSES

SW 340 Group Dynamics
Prerequisite: consent of the instructor. Group dynamics is designed for students who seek to develop their leadership skills in working with groups of various types. This implies a cognitive and behavioral mastery of a range of complex variables for role effectiveness, including a working knowledge of personal, group and organizational dynamics, professional skills of facilitation, and values of one's professional identity. 3 credit hours.

SW 401-402 Field Instruction I and II
Supervised experience relevant to specific aspects of social services in human service agencies, institutions and organizations at the local, state and federal levels. Seminars to assist students with the integration of theoretical knowledge and field techniques through lectures and class presentations. Students are required to spend eight hours a week in the field. 3 credit hours each.

SW 415-416 Methods of Intervention I and II
Prerequisite: SW 350. Basic social work theory is presented in conjunction with practice skills to help students begin to develop professional techniques for intervention at both the macro and micro levels of practice. 3 credit hours each.

SW 599 Independent Study
Prerequisite: Consent of the particular faculty member Designed to permit students to pursue specific areas of interest which may not be available in the curriculum. 1-3 credit hours.

Spanish

SP 101-102 Elementary Spanish
Stresses pronunciation, aural and reading comprehension, basic conversation and the fundamental principles of grammar. 6 credit hours.

SP 201-202 Intermediate Spanish
Prerequisites: SP 101-102 or equivalent. Stresses the reading comprehension of modern prose texts and a review of grammar necessary for this reading. Students are encouraged to read in their own areas of interest. 6 credit hours.

SP 301-302 Main Currents of Spanish Literature
Prerequisites: SP 201-202 or equivalent. Reading of significant writers of Spanish literature from the Middle Ages to the twentieth century. 6 credit hours.

Theatre Arts

T 131 Introduction to the Theatre
Play analysis from a literary standpoint and as it relates to special problems of the actor, director, designers and backstage personnel. Practical work in all phases within the classroom. Fall semester. 3 credit hours.

T 132 Theatrical Style
Study of dramatic genres and theatrical conventions through script and critical reading, as well as practical work in class. Spring semester. 3 credit hours.

T 241 Early World Drama and Theatre
Dramatic literature in theatrical contexts from classical Greece through Restoration England. 3 credit hours.

T 242 Modern World Drama and Theatre
Dramatic literature in theatrical contexts from Realism through the 19th century to the present. Includes ethnic drama. 3 credit hours.

T 341 Acting
Development of acting skills for the stage through games, improvisation and scene study. 3 credit hours.

T 342 Play Directing
Prerequisite: consent of the instructor. Fundamentals of directing; staging techniques; working with actors; direction of a one-act play for workshop presentation. 3 credit hours.

T 491-492 Production Practicum I-II
Prerequisite: consent of the instructor. Practicum in various areas of theatre: acting, directing, administration, technical theatre and design. Will be directly related to departmental productions. Each 3 credit hours.

T 599 Independent Study
Opportunity for the student under the direction of a faculty member to explore an area of interest. This course must be initiated by the student. 3 credit hours.

Tourism and Travel Administration

TT 165 Principles of Tourism and Travel
An introduction to aspects of tourism related to the worldwide tourism industry. Foreign and domestic tourism and business travel will be included. 3 credit hours.

TT 166 Touristic Geography
Prerequisite: TT 165. An examination of the touristic areas of the most important travel destinations. Travel destinations; current developments of travel world wide; attracting individuals, pleasure groups and business conventions. 3 credit hours.

TT 215 Supervised Field Experience I
Prerequisite: Consent of the instructor. 250 hours of field work in travel offices, tourism bureaus, airlines, shipping companies, wholesalers, tour operators, hotels or restaurants. The field experience will emphasize marketing techniques, and will be accompanied by readings, reports and faculty conferences. 3 credit hours.

TT 267 Shipping and Cruises
Prerequisites: TT 165, TT 166. An analysis of the modern shipping and cruising industries; the passenger liner as a total vacation entity and its interrelationship with airlines, tour operators and travel agencies. 3 credit hours.

TT 268 Land Transportation
Prerequisites: TT 165, TT 166. An examination of land transportation from its origins to modern times, including the effects of rail, coach, truck and automotive modes throughout the world. The development of major world-wide rail systems and the phenomenal growth of automotive travel are explored. 3 credit hours.

TT 300 Special Topics
The tourism and travel industry is constantly changing due to new technology and avenues for their expansion and management. The purpose of these courses is to select special topics that are not covered in existing courses and expose students to recent developments and future research in the following specific course. Selected course will be offered in the fall, spring and summer semesters.

TT 300 Western Hemisphere Tourism
Prerequisites: TT 165, TT 166, TT 267, TT 268. The Western Hemisphere is finally gaining its rightful position as a major destination in the world of tourism. North, South and Central America as well as the Caribbean are studied in depth as prime leisure travel destinations and corporate/business travel convention sites. 3 credit hours.

TT 300 The Psychology of Leisure Travel
Prerequisites: TT 165, TT 166, TT 267, TT 268. An exploration of the consumer-traveler to better acquaint students with the needs and motivations of travel customers. This course will provide a heightened sensitivity to consumer behavior in the travel industry and will enhance the students' ability to develop and promote services that better and more profitably serve consumers of travel. 3 credit hours.

TT 300 Travel Marketing Techniques
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 480. An examination of the procedures involved in planning, developing and implementing a total travel marketing campaign. Topics will include all aspects of travel and tourism advertising and promotion, including newspapers, magazines, radio, television, direct mail, directories and other media, as well as procedures for maintaining good public relations. 3 credit hours.

TT 300 Tourism Planning and Development
A detailed analysis of the immense proportions of world tourism, spanning the processes of long-range planning and management strategies that insure tourism's proper development within the economic, political and social sectors. Topics range from market analysis and conceptual planning to site development, transportation, accommodations and support industries. 3 credit hours.

TT 300 Travel Agency Automation
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370. An examination of the history of automation in the retail travel agency and insight into its computerized reservation and back office systems. Hands-on computer instruction on the AMERICAN AIRLINES SABRE computer system. 3 credit hours.

TT 300 Tour Management
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370. A thorough examination of the basics of tour management including qualifications, personality, personal input and pre-tour preparation. Successfully escorting a tour with its diverse membership, daily routine, inherent problems and post tour analysis is also explored. 3 credit hours.

COURSES

TT 300 Independent Travel
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370 and TT 375. The resurgence of independent pre-planned travel itineraries requires specialized knowledge in many facets of the industry. Thorough knowledge of a multitude of travel facts combined with knowledge of air, shipping, accommodations, rail and vehicular transportation is a necessary requisite for the travel counselor. 3 credit hours.

TT 300 Tourism and Travel Trends
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 480. The travel industry is greatly affected by current trends in world political and economic events. Studied during the course is the impact of deregulation of the airlines; world terrorism with the resulting shift of tourism destinations, as well as, weather and natural disasters such as earthquakes and eruptions; and national and international strife. 3 credit hours.

TT 300 The Meeting Planner
Prerequisites: TT 165, TT 166, TT 267, TT 268. As corporate meetings/conventions continue to increase on the worldwide tourism market, one of the new career paths is that of the meeting planner. Included in within their sphere of responsibility is site selection, meeting organization, meal planning, transportation, leisure activities and informational services right down to the breakout sessions. This course covers this new path in depth. 3 credit hours.

TT 300 Special Interest Travel
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370. An investigation into the extraordinary and ever-increasing field of specialized travel in the leisure travel market, the rise of travel for the handicapped; travel for the adventurer. 3 credit hours.

TT 300 Recreational Tourism and Hospitality
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 380. This course covers the dramatic increase in USA/Canada travel by automobile, recreational vehicle and motorcoach in the 1980s. The national, state and provincial parks and campgrounds are filled to capacity, thus creating an urgent need for expanded and improved tourist facilities. This course studies creative solutions inherent in this tourist development. 3 credit hours.

TT 300 Incoming Tourism
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370. The era of constantly changing air fares coupled with the resurgence of the charter market has resulted in a new challenge to the domestic travel industry. This course will examine these facets of the industry as it must redirect its objectives and adapt sales and service efforts to the needs of the foreign visitor. Also studied are the national origins of the visitors, their destinations and their expectations. 3 credit hours.

TT 300 Terrorism and Tourism
Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370 and PS 241. Tourism projections of many nations have changed radically due to the recent upsurge of international terrorism throughout the world. The focus of travel destinations has changed due to travelers' fears of the senseless, unpredictable bombings, kidnappings and seizures of hostages. This course is an in-depth study of terrorism as a national policy, the motivations of the terrorist and ultimate goals of the terrorist organizations. 3 credit hours.

TT 300 International Customs and Manners
Prerequisites: TT 165, TT 166. This course is designed to acquaint the student with international cultural behavior. The professional travel counselor enriches any foreign journey immeasurably by helping the traveler understand and enjoy one of the important facets of the trip — the people, their customs and manners. Specifically the course includes conversational patterns, dining, bargaining, dress and particularly the development of skills on how to make friends in a foreign culture. 3 credit hours.

TT 317 Supervised Field Experience II
Prerequisite: consent of the instructor. 250 hours of field work in travel offices, tourism bureaus, airlines, shipping companies, wholesalers, tour operators, hotels or restaurants. The field experience will emphasize selected aspects of personnel management, and will be accompanied by readings, journals and faculty conferences. 3 credit hours.

TT 370 Airline Transportation and Reservations Procedures
Prerequisites: TT 165, TT 166, TT 267, TT 268. A study of the impact of the airlines within the tourism and travel industries. Topics include the historical background of air travel, developments, trends and the effect of deregulation on airlines, travel agencies and the consumer. A major part of the course will be devoted to the study of airline reservations and ticketing procedures. 3 credit hours.

TT 375 Travel Agency Management

Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370. A study of the travel business, defining the roles of the retail travel agent and the wholesale tour operator, and an examination of their relationships within the industry and with the traveling public. 3 credit hours.

TT 419 Supervised Field Experience III

Prerequisite: consent of the instructor. 250 hours of field work in travel offices, tourism bureaus, airlines, shipping companies, wholesalers, tour operators, hotels or restaurants. The field experience will emphasize accounting procedures, and will be accompanied by readings, reports and faculty conferences. 3 credit hours.

TT 480 Wholesalers and Tour Operators

Prerequisites: TT 165, TT 166, TT 267, TT 268, TT 370. An in-depth examination of the tour industry, including a detailed study of package tours, escorted tours, costing, marketing and planning. Included in the study is the creation of an individual, fully escorted tour from start to finish. 3 credit hours.

TT 512 Seminar in Tourism and Travel

Prerequisite: senior status or consent of the instructor. Current topics and developments within the travel and tourism industry with emphasis on career development in tourism and travel. 3 credit hours.

TT 521 Supervised Field Experience IV

Prerequisite: consent of the instructor. 250 hours of field work in travel offices, tourism bureaus, airlines, shipping companies, wholesalers, tour operators, hotels or restaurants. The field experience will emphasize computer applications and cost control procedures and will be accompanied by readings, reports and faculty conferences. 3 credit hours.

TT 599 Independent Study

Prerequisite: permission of the department chairman. Independent research projects or other approved phases of independent study. 3 credit hours.

BOARD, ADMINISTRATION, AND FACULTY*

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Flemming L. Norcott, Jr., appellate court justice
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Mrs. William F. Robinson, Sr., former Title IV consultant, State Department of Education
Nicholas A. Russo, evening student representative
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Fenmore Seton, retired president, Seton Name Plate Corporation
David Sloane, full-time faculty representative
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George R. Tiernan, *secretary*; attorney at law
Fritz G. Tovar, vice president-general manager, Electric Boat Division, General Dynamics Corporation
Cheever Tyler, attorney at law, Wiggin & Dana
Robert F. Wilson, former chairman of the board, Wallace International Silversmiths, Inc.

**Correct as of March 1988*

Standing Committees of the Board

Executive: Norman I. Botwinik, Chairman; Herbert H. Pearce, Vice Chairman; James Q. Bensen, Robert B. Dodds, Joseph F. Duplinsky, John E. Echlin, Jr., Robert M. Gordon, Phillip Kaplan (non-voting), T. Jerald Moore, Alexander W. Nicholson, Jr., Leon J. Talalay, George R. Tiernan, Cheever Tyler, Robert F. Wilson
Building and Grounds: Norman I. Botwinik, Chairman; Leon J. Talalay, Vice Chairman; Edward J. Drew
Development: Cheever Tyler, Chairman; James Q. Bensen, Norman I. Botwinik (ex-officio), Robert B. Dodds, Phillip Kaplan (non-voting), Nikki Lindberg (staff), Alexander W. Nicholson, Jr., Herbert H. Pearce, Leon J. Talalay
Nominating: Herbert H. Pearce, Chairman; John A. Frey, Phillip Kaplan (non-voting), Mrs. William F. Robinson, Sr.
Finance: Joseph F. Duplinsky, Chairman; Robert P. Adler, James Q. Bensen, Robert B. Dodds, John E. Echlin, Jr., Frederick G. Fischer (staff), Robert M. Gordon, Phillip Kaplan (non-voting), Alexander W. Nicholson, Jr., Robert F. Wilson, Jr.
Personnel: Leon J. Talalay, Chairman; Phillip Kaplan (non-voting)

Administration

Office of the President

Phillip Kaplan, B.A., M.A., Ph.D., president
Lorraine A. Guidone, assistant to the president and to the chairman of the board
Lucy Wendland, executive secretary

Office of the Provost

Alexis N. Sommers, B.M.E., M.S., Ph.D., provost
James W. Uebelacker, B.A., M.A., Ph.D., associate provost
Caroline A. Dinegar, B.A., M.A., Ph.D., assistant provost for governmental affairs
Nancyanne Rabianski, B.A., M.S., Ph.D., assistant provost for students' academic development
Genevieve Lysak, executive secretary

School of Arts and Sciences

Joseph B. Chepaitis, A.B., M.A., Ph.D., dean
Charles L. Vigue, B.A., M.S. Ph.D., chairman biology/environmental studies

George L. Wheeler, A.B., Ph.D., chairman, chemistry
Steven Raucher, B.A., M.S., Ph.D., chairman, communication
John J. Teluk, B.A., M.A., chairman, economics
Paul Marx, M.A., M.F.A., Ph.D., chairman, English
Edmund Todd III, B.A., M.A., Ph.D., chairman, history
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Baldev K. Sachdeva, B.S., M.A., Ph.D., chairman, mathematics
Kee W. Chun, A.B., A.M., Ph.D., chairman, physics
James P. Dull, B.A., M.A., M.Phil., Ph.D., chairman, political science
Thomas L. Mentzer, B.S., M.S., Ph.D., chairman, psychology
Faith Eikaas, B.A., M.A., Ph.D., chairman, sociology & social welfare
Lila Wolff-Wilkinson, A.B., M.A., Director of Theatre
Sharon Reynolds, executive secretary

School of Business

Marilou McLaughlin, B.A., M.A., Ph.D., dean
Robert E. Gaensslen, B.S., Ph.D., associate dean
Thomas Katsaros, B.A., M.A., M.B.A., Ph.D., associate dean; director, Bureau of Business Research
William R. Bockley, V.E., L.L.B., M.B.A., Ph.D., director, doctoral program
Robert E. Rainish, B.S., M.B.A., Ph.D., chairman, accounting/finance
Steven Raucher, B.A., M.S., Ph.D., chairman, communication
Wilfred Harricharan, B.S., M.S., Ph.D., chairman, management & quantitative analysis
David A. Maxwell, B.B.A., M.A., Ph.D., chairman, public management
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Executive M.B.A. Program

Robert R. Ruhlin, B.S.E.E., E.M.B.A., director

School of Engineering

Konstantine C. Lambrakis, B.S.E.E., M.S.M.E., Ph.D., dean
B. Badri Saleeby, B.S.M.E., M.S.M.E., Ph.D., associate dean
Richard A. Strauss, B.A., M.P.A., assistant dean for administration
George L. Wheeler, A.B., Ph.D., chairman, chemistry and chemical engineering
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Daniel C. O'Keefe, B.S.E.E., M.S.E.E., Ph.D., chairman, electrical and computer engineering
Ira H. Kleinfeld, B.S., M.S., Sc.D., chairman, industrial engineering and computer science
John Sarris, B.A., M.S., Ph.D., chairman, mechanical engineering
Alice Fischer, B.A., M.A., Ph.D., undergraduate coordinator, computer science
Roger G. Frey, B.A., M.S., Ph.D., graduate coordinator, computer science
Lucille P. Lamberti, executive secretary

School of Hotel, Restaurant and Tourism Administration

James F. Downey, B.S., M.S., Ph.D., dean
Beverly Bentivegna, B.A., M.A., R.D., acting chairman, dietetics and institutional administration
Linsley T. DeVeau, B.S., M.S.I.R., chairman, hotel and restaurant management
Elisabeth S.L. VanDyke, B.A., M.A., Ph.D., chairman, tourism and travel administration

Angelo Bentivegna, B.S., M.S., D.E.D., coordinator, graduate studies
William H. Williams, B.S., M.S., coordinator, cooperative education
Linda Carlone, administrative assistant
Nancy DeMartino, executive secretary

School of Professional Studies and Continuing Education

Ralf E. Carriuolo, B.A., M.M., Ph.D., dean
Richard C. Morrison, A.B., M.S., Ph.D., associate dean
Silvia I. Hyde, executive secretary

Evening Studies

Dany Washington, B.S., M.A., Ph.D., director

Professional Studies

Brad Garber, B.S., M.S., Ph.D., chairman; director, occupational safety and health
Frederick Mercilliott, B.S., M.P.A., D.A., Ph.D., director, fire science programs
David Hunter, B.S., M.P.A., director, aviation
Robert Sawyer, B.S., M.S., coordinator, fire science administration and technology programs

Division of Corporate and Professional Development

Richard C. Morrison, A.B., M.S., Ph.D., Associate Dean, Acting Director
Molly Rudolph, B.S., M.A., Corporate Representative
Sheila Hurteau, Administrative Assistant
Lorrie A. Arsenian, Administrative Assistant

Cooperative Education

Cheryl Lison, B.S., M.A., Director
Patricia A. Bolles B.A., M.S., Assistant Director
Domingo Arias, M.A., Co-op Coordinator
Marcia B. Proto, B.A., M.Ed., Co-op Coordinator
Andre Salsedo, B.A., M.A., Ph.D., Co-op Coordinator
Philip Schmitz, B.A., M.A., Co-op Coordinator
Roberta Holland, A.S., Administrative Assistant

U.N.H. in Southeastern Connecticut

John F. O'Brien, B.S., M.B.A., senior director
Martha Fox, A.S., B.S., coordinator, outreach program
Jane P. Campbell, administrative assistant

Graduate School

William S. Gere, Jr., B.M.E., M.S.I.E., Ph.D., dean
D. Jeanne Martin, executive secretary

Graduate Admissions

Joseph F. Spellman, B.S., M.A., director of graduate admissions and operations
Letitia Bingham, B.A., M.A., assistant director
*__Joseph C. Heap__, B.S., M.Ed., coordinator, Southeastern Connecticut

Equal Opportunity

Caroline A. Dinegar, B.A., M.A., Ph.D., assistant provost

Institute of Computer Studies

Richard B. Jones, B.S., M.S., Ph.D., director
Henry Farkas, B.S., microlab director

Library

Caroline A. Dinegar, B.A., M.A., Ph.D., acting university librarian
Hanko Dobi, B.A., M.L.S.,head of reference/head of extensions
Alison Lipski, B.A., M.A., reference librarian
Catherine Phinizy, B.A., M.A.T., M.L.S., reference librarian at Groton
Algis Stankus-Saulaitis, B.A., M.L.S., reference librarian
Christine Walnycky, B.S., M.L.S., reference librarian
Patricia Taylor, director of technical services
Ann Andrus, executive secretary

Students' Academic Development

Nancyanne Rabianski, B.A., M.S., Ph.D., assistant provost
Loretta K. Smith, B.A., M.A., director of the center for learning resources
***Mildred Bohannah**, B.A., M.A., probation registration counselor
Donald C. Smith, B.A., M.S., Ph.D., probation registration counselor
Christine Repoley, B.A., M.A., administrative assistant

Office of the Vice President for Finance

Frederick G. Fischer, B.S., CPA, vice president for finance, treasurer, secretary to the University
Elsie Calandro, executive secretary

Athletics

William M. Leete, M.Ed., director
Deborah Chin, M.S.P.E., associate director; head coach, volleyball
Frank Vieira, M.S., head coach, baseball, director of intramurals
John Anquillare, B.S., assistant coach, baseball
Robert Deobil, B.S., trainer; administrative assistant
Melissa Ilg, B.A., sports information director
Mark Whipple, B.A., head coach, football
Eric Burgess, B.S., assistant coach, football
Paul Gorham, B.A., assistant coach, football
Stuart Grove, 6th Year Certificate, head coach, men's basketball
Russell Hill, B.S., head coach, women's basketball
Joseph Maher, B.A., head coach, soccer
James Hanneken, B.A., head coach, cross country, track
Peter Zoppi, B.S., head coach, softball
Lori Lombardi, B.S., head coach, women's tennis
Richard Linell, B.S., head coach, lacrosse
Leo Paquette, equipment manager

Business Office

Marjorie C. Montague, B.S., M.B.A., controller, assistant secretary to the university
Barbara Manville, B.S., assistant controller
Frances A. MacMillan, bursar
Diane Bencivengo, accounts clerk
Caroline Dean, accounts clerk
Mary Lou Kromer, accounts clerk
Noreen Biondi, B.S., accounting supervisor
Rosemary Rzeszutek, B.S., payroll supervisor
Ann Thompson, accounts clerk
***Helene Fillmore**, accounts clerk
Trace Landino, B.S., accounting coordinator
Ivana Pasquale, accounts clerk
Alonna Simoes, accounts clerk

*denotes part-time employee

Public Relations

Antoinette Blood, B.S., director
Jacqueline L. Church, B.A., M.A., associate director
Sheila A. Adams, B.S., production coordinator
Anthony J. Nicosia, executive secretary

Purchasing, Receiving & Duplicating

Frederick G. Fischer, B.S., vice president for finance
Lynne Ryerse, purchasing manager
Anthony Ortiz, receiving and inventory clerk
Maureen Chase, central duplicating service
*Phyllis Raffone, administrative clerk I

Computer Center

Albert C. Leiper, B.A., M.S., director
Johann Stanton, senior administrative assistant
Cynthia Kranyik, B.A., M.S., director of academic services
Susan Hung, B.A., M.S., information center supervisor
James Trella, B.S., M.S., computer systems specialist
Raymond Pulaski, B.S., M.S., manager of computer operations and on-premise C.E.
Salvatore Votto, Jr., B.S., director of administrative services
John Mitchell, B.S., M.S., data communications technical analyst
Steve Dwyer, B.A., B.S., administrator CAEC user services
Gerald Petrecca, B.S., programmer
Daniel Hally, B.A., senior programmer analyst
Arnold Gibb, computer operator
Michael Serphillips, academic user services technician

Security

Donald R. Scott, A.S., B.S., chief
Richard D. Baker, A.S., inspector
John H. Amato, B.S. patrol sergeant
Eldridge L. Hatcher, patrol sergeant
Arcadio Rodriguez, patrol sergeant
Arthur P. Sheehan, B.S., patrol sergeant
James V. Dillman, patrolman
Andrew W. Eckman, patrolman
Oscar J. Stanley, patrolman
Ronald D. Whittaby, patrolman
Rosemarie Giannotti, secretary
Dorothy L. Kyles, dispatcher/office attendant
*Theodore Kastancuk, dispatcher/office attendant
*Samuel Smith, B.S., dispatcher/office attendant

Office of the Vice President for Administration

Joseph F. Carilli, B.S., B.C.E., J.D., president for administration
Susan Criscuolo, executive secretary

Bookstore (Brennan College Service)

Barbara Farrell, B.A., manager

Buildings and Grounds

Donald Wright, supervisor of buildings and grounds
Michel Jean-Pierre, supervisor of custodians
Joseph Feiko, evening supervisor
Susan Maiorino, administrative assistant

*denotes part-time employee

Campus Dining Services

Career Development
Pamela Francis, B.S., M.A., director

Counseling
Deborah Everhart, B.A., M.A., Ph.D., director
Linda Copney Okeke, administrative secretary

Disabled Student Services
Arlene Faiman, B.S., M.S., director

Health Services
Phyllis Landry Cohn, B.S., director
Paula Cappuccia, R.N., A.S., staff nurse

International Services
Mary Idzior, B.A., Ed.M., J.D., coordinator

Minority Student Services
James E. Martin, Jr., B.A., M.Ed., Ph.D., acting director

Personnel
David C. Hennessey, B.A., M.B.A., director

Radio Station
Rose Majestic, A.S., B.S., M.Ed., general manager
Tom Osenkowsky, chief engineer

Residential Life
Rebecca D. Johnson, B.A., M.A., director

Student Life
James E. Martin, Jr., B.A., M.Ed., Ph.D., dean
Ann Massini, executive secretary

Office of Admission Services
Robert Caruso, B.S., M.Ed., Ph.D., dean of admission services
Yolanda Costanzo, executive secretary

Undergraduate Admissions
Laurie G. Saunders, B.S., M.A., director of undergraduate admissions
Lesa Loritts, B.A., associate director
Midge Burnette, B.S., M.S., coordinator of international admissions
Kathleen S. Kane, B.S., counselor
Paula Kennedy, B.A., counselor
Dana Ann Montini, B.A., M.A., counselor

Financial Aid
James T. Anderson, B.A., M.S., director
Jane C. Sangeloty, B.A., associate director
Karen Monteith, B.A., assistant director
Susan Gerber, B.S., counselor

Undergraduate Records
Joseph Macionus, B.S., M.P.A., university registrar
Nancy A. Carroll, B.S., M.S., associate registrar

Graduate Records

Virginia Klump, registrar for graduate records

Veterans' Affairs

Karen Monteith, B.A., counselor for veterans and financial aid

Office of Development and Alumni Relations

Nikki de L. Lindberg, director
Jane Cooper, B.S., associate director, corporate and foundation relations
Robert H. Morgan, B.S., associate director, alumni relations and annual giving
Beverly I. Collings, B.A., assistant director for alumni relations
Celia A. Lenkiewicz, executive secretary

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Deans' Council: Alexis N. Sommers, Ph.D., chairman
Financial Aid: James T. Anderson, M.S., chairman
Institute of Computer Studies Steering Committee: Richard B. Jones, Ph.D., chairman
Undergraduate Women: Robert Caruso, Ph.D., chairman

Faculty 1988*

Adams, William R., Assistant Professor, Industrial Engineering
B.S.E.E., B.S., M.S., University of New Haven

Aliane, Bouzied, Assistant Professor, Electrical Engineering
B.S.E.E., Ecole Polytechnique d'Alger; M.S.E.E., Ph.D., Polytechnic Institute of New York

Baeder, Robert W., Associate Professor, Management and Marketing
B.B.A., Case Western Reserve University; M.B.A., Ph.D., Ohio State University

Barratt, Carl, Assistant Professor, Mechanical Engineering
B.S., University of Bristol, England; Ph.D., University of Cambridge England

Bassett, Richard A., Lecturer, Management and Marketing
B.S., M.S., University of New Haven

Bechir, M. Hamdy, Professor, Civil Engineering
B.C.E., Cairo University; M.A.Sc., University of Toronto; Sc.D., Massachusetts Institute of Technology

Bell, Srilekha, Professor, English
B.A., M.A., University of Madras; M.A., Ph.D., University of Wisconsin

Bentivegna, Angelo, Professor, Hotel/Restaurant Management
M.S., Drexel University; B.S., D.E.D., Pennsylvania State University

Bentivegna, Beverly A., Assistant Professor, Dietetics and Institutional Management
B.S., M.Ed., Pennsylvania State University

Berman, Peter I., Professor, Accounting/Finance
A.B., Cornell University; Ph.D., Johns Hopkins University

Bockley, William R., Associate Professor, Management
V.E., Northeastern University; L.L.B., LaSalle University, M.B.A., Babson College; Ph.D., Boston College

Bodon, Jean-Richard, Associate Professor, Communication
B.A., Birmingham Southern College; M.A., University of Alabama; Ph.D., Florida State University

**Effective as of September 1, 1988*

Broderick, Gregory P., Assistant Professor, Civil & Environmental Engineering
B.S., M.S., Northeastern University; Ph.D., The University of Texas
Brody, Robert P., Associate Professor, Marketing
B.A., Wesleyan University; M.B.A., University of Chicago; D.B.A., Harvard University
Carriuolo, Ralf E., Professor, Visual and Performing Arts
B.A., Yale University; M.M., Hartt College; Ph.D., Wesleyan University
Carson, George R., Professor, Civil Engineering
B.C.E., City College of New York; M.S.C.E., Columbia University
Cellotto, Albert, Instructor, Visual and Performing Arts
B.M., Western Connecticut State College; M.M., Indiana State University
Chandra, Satish, Professor, Business Law
B.A., University of Delhi; M.A., Delhi School of Economics; LL.B., Lucknow Law School, India; LL.M., J.S.D., Yale University
Chepaitis, Joseph B., Professor, History
A.B., Loyola College; M.A., Ph.D., Georgetown University
Cho, Bih-Lin, Assistant Professor, Industrial Engineering and Computer Science
B.J., M.S.E.E., Ph.D., University of Missouri-Columbia
Chun, Kee W., Professor, Physics
A.M., Princeton University; A.B., Ph.D., University of Pennsylvania
Coleman, Charles N., Assistant Professor, Public Administration
B.A., University of Maryland; M.P.A., West Virginia University
Collura, Michael A., Assistant Professor, Chemical Engineering
B.S., Lafayette College; M.S., Ph.D., Lehigh University
Costello, Francis J., Associate Professor, Industrial Engineering
B.S.M.E., M.S.M.E., Newark College of Engineering
DeMayo, William S., Professor, Accounting
B.S., University of Pennsylvania; M.B.A., New York University
Desio, Peter J., Professor, Chemistry
B.S., Boston College; Ph.D., University of New Hampshire
DeVeau, Linsley T., Assistant Professor, Hotel/Restaurant Management
B.S., University of Nevada/Las Vegas; M.S.I.R., University of New Haven
Dichele, Ernest M., Associate Professor, Accounting
B.S., University of New Haven; J.D., Boston College Law School; LL.M., Boston University School of Law
Dinegar, Caroline A., Professor, Political Science
B.A., Cornell University; M.A., Ph.D., Columbia University
Downe, Edward, Associate Professor, Finance
M.B.A., Bowling Green State University; M.A., Ph.D., New School for Social Research
Downey, James F., Professor, Hotel/Restaurant Management
B.S., Pennsylvania State University; M.S., University of Wisconsin-Stout; Ph.D., Purdue University
Dugan, Robert D., Professor, Psychology
B.A., M.A., University of Kentucky; Ph.D., Ohio State University
Dull, James W., Professor, Political Science
B.A., Wilkes College; M.A., University of Pennsylvania; Ph.D., Columbia University
Eikaas, Faith, Professor, Sociology
B.A., M.A., Ph.D., Syracuse University
Ellis, Lynn W., Professor, Management
B.S., Cornell University; M.S., Stevens Institute; D.P.S., Pace University

Elmendorf, Anthony, Assistant Professor, Mathematics
B.A., Reed College; M.S., Ph.D., University of Chicago
Faigel, Oleg, Associate Professor, Mechanical Engineering
B.S., M.S., Ph.D., Moscow Polytechnical Institute
Farmer, Richard E., Professor, Criminal Justice
A.B., St. Anselm's College; M.S., University of New Haven; Ed.D., Boston University
Ferringer, Natalie S., Associate Professor, Political Science
B.S., Temple University; M.A., Ph.D., University of Virginia
Fillebrown, Eleanor E., Associate Professor, Accounting and Finance
B.S., Simmons College; M.B.A., M.S., Drexel University
Fischer, Alice, Associate Professsor, Industrial Engineering
B.A., University of Michigan; M.A., Ph.D., Harvard University
Fish, Andrew J., Jr., Associate Professor, Electrical Enginering/Computer Science
B.S.E.E., Worcester Polytechnic Institute; M.S., University of Iowa, St. Mary's University; Ph.D., University of Connecticut
Flaumenhaft, Frank F., Assistant Professor, Management
B.S., University of Pennsylvania; M.B.A., New York University
French, Bruce A., Associate Professor, English
A.B., University of Missouri; M.A., Western Reserve University; M.A., Middlebury College; M.A., Harvard University; Ph.D., New York University
Frey, Roger G., Professor, Industrial Engineering
B.A., M.S., Ph.D., Yale University; J.D., Yale Law School
Fridschal, Donald, Professor, Mathematics
B.E.E., M.S., New York University; Ph.D., University of Connecticut
Gaensslen, Robert F., Professor, Forensic Science
B.S., University of Notre Dame; Ph.D., Cornell University
Gangler, Joseph M., Professor, Mathematics
B.S., University of Washington; M.A., Ph.D., Columbia University
Garber, Brad T., Professor, Professional Studies
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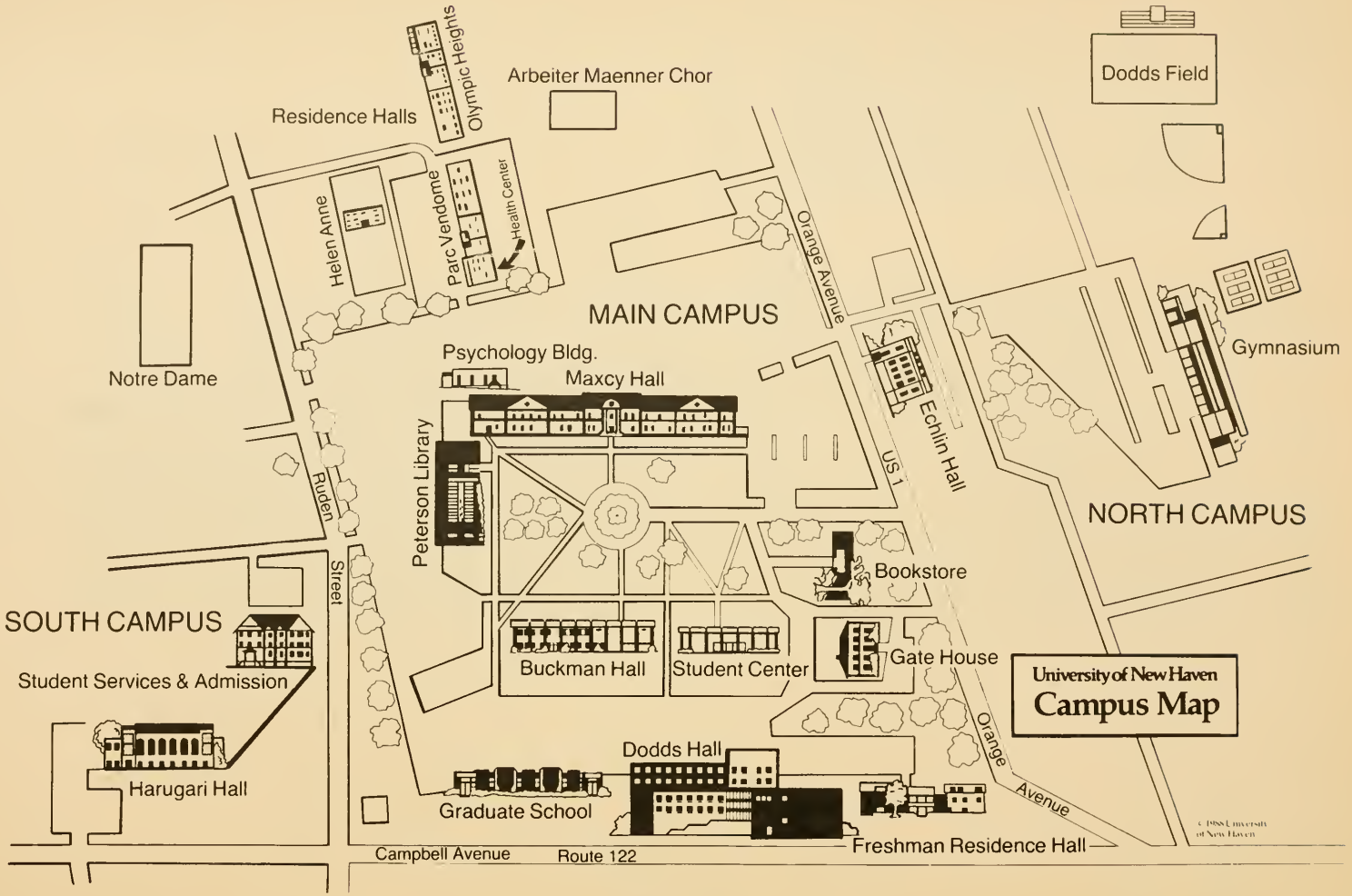
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Arbeiter Maenner Chor
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Parc Vendome
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MAIN CAMPUS
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Notre Dame
Psychology Bldg.
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US 1
Echlin Hall
NORTH CAMPUS
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SOUTH CAMPUS
Student Services & Admission
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Campus Map
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